The Builder.

VOL. XXI.—No. 1042.

Of Monuments and Memorials, and of a Training School for Monumental Design.

WE have witnessed the establishment of schools of design in all parts of the country for teaching the art of ornamental composition, and the application of suitable decoration to various branches of manufacture, to household furniture, and to the decorative enrichment of the more important kinds of architectural interiors. Some good effect produced by the training of these schools we have seen manifested in works of various kinds which have recently done honour to our native art in the great International Exhibition of 1862; but we have not at present a school, nor even a distinct branch in any of our artistic training schools, devoted to that highest kind of ornamental design which is applicable to important public monuments of a partially architectural character. No official public training of this kind is at present to be had in this country; and yet the advantages that might be derived from the establishment of a separate branch in already existing schools in which this important department of art should be taught, are incontestable. The art of decorative composition as specially applied to the ornamental accessories of public statues and other public memorials of analogous character ought to be known among us, but it is not. It is not known because it is not specially taught or studied; and without effective teaching and earnest study it will certainly not develop itself. It is a class of art that is not of spontaneous growth. Without a training-school of the precise character alluded to, it may be safely affirmed that the recent monuments of Paris, and, above all, the sumptuous decorations of the new Louvre, could never have been executed with the feeling of profuse magnificence that will long insure to Paris a pre-eminence as the metropolis of the Fine Arts.

It has been shown in a recent article in the *Builder*, and often before, that the accessorial features of our public statues and memorials are of the poorest kind; that even the masonry of the pedestals, or columns, is unworthy of any sort of monumental structure. The usual process in erecting a public memorial seems to be as follows. A statue is procured (frequently the result of the grossest job in the selection and patronage of a favoured artist), and then, the funds having been all lavished on the fortunate *protégé* of some influential patron, the pedestal and accessories become the result of some contract job, done at the lowest possible price, and, of course, in the worst possible manner. Our sculptors have not been trained to consider that the mere portrait-statue should form but a small part of a memorial erected in honour of a departed celebrity, whatever may have been the character of his services. It should form, as we have before now pointed out at length, but the nucleus of a composition destined to surround the statue with artistically-expressed signs of public sympathy, as the representative of a departed member of the national family whose career had shed honour upon his country. This feeling in the design of public memorials of a monumental character is fully appreciated by our Continental neighbours; but the reason of its being so much better understood by them than by our own artists is, that in Paris there is a special department in the *Ecole des Beaux Arts* devoted entirely to the combination of architectural and sculptural art, in which the united labours of the sculptor of the human figure, the ornamental carver, and the architect, must be harmoniously united, each bringing the best powers of his own speciality to the work, before a truly grand monument, such as those of the fifteenth and sixteenth centuries, can be produced. Such, for instance, as the elaborate tomb of the Cardinal d'Amboise, in the cathedral of Rouen, which, with all the defects that a modern critic might point out, is exquisitely beautiful, not only in a general profuse richness of effect, which at once arrests attention and admiration, but in the exquisite finish of the elegant details, which are so elaborate that the spectator is irresistibly detained to examine their almost endless ornamental details, each wrought out with the conscientious skill of a real artist.

The establishment of the *Cours d'Ornement et d'Ajustement*, in the *Ecole des Beaux Arts*, has been the means of teaching a new race of French artists the secret of designing sepulchral monuments and other public memorials in a style of magnificence worthy of the descendants of the great artists who produced those fine Mediæval monuments, many of which are still found enriching the churches and public places of France, notwithstanding the numbers which were so recklessly destroyed during the Revolution.

The subject selected to test the powers of the pupils in the *Cours d'Ornement et d'Ajustement*, in the last session of the school was, a design for a public monument to the great French sculptor of the Renaissance epoch, Jean Goujon. Many of the drawings exhibited considerable powers of invention in the design of appropriate ornament, and skill in the grouping and general distribution of the ornamental accessories to the principal figure, evidently the result of very careful and successful training. The two selected as worthy of the first and second Rougevin prizes were, however, much in advance of all the others,—a satisfactory proof of the good taste and impartiality of the judges; though it should be stated at the same time that the one to which the second prize was awarded was thought by many experienced artists to be the best design of the two.

As a contrast to the baldness and poverty-stricken style of the accessories by means of which the statues of our British worthies are presented to the public, it may not be out of place to describe the decorative features which, in the two designs in question, were made to support, decorate, and protect the proposed statue of Jean Goujon. The fine design which received the first medal, accompanied by a gift of 600 francs, was the work of M. Pascal, a young *élève* of M. Questel, the well-known architect. This design is that of a mural monument, consisting of a projecting base surmounted by appropriate mountings, and supporting a projection of sufficient prominence to contain a deeply-recessed niche for the reception of the portrait-statue. This central portion of the composition is extended laterally by means of wings of corresponding character, but less prominence, which have the effect of uniting the central projection with the general level of the supposed wall to which the monument is attached, and so shade off the general composition into the mass of the building of which it is intended to form an integral, or at all events an attached, portion; and prevent it from having the appearance of being simply stuck on, without any of those devices of artistic design by which alone one work of art can be grafted upon another. The details of the composition are in many respects very good, while in others they exhibit the short-comings seldom entirely absent from the works of an inexperienced pupil. The figure of Goujon, in the costume of his time, is sufficiently characteristic in conception, but poor in treatment. It is not fair, however, to criticise this feature of the composition too closely, as it is only the sketch of the ornamentist, to fill the niche as a test of general effect; the real statue being of course the destined task of an artist of another and a higher class. The pilasters at either side of the niche are of a reduced and Mediævalized Corinthian order, and the ornaments filling the plain spaces furnished by the treatment of the architectural portion of the design are of a delicate Renaissance character, of the style in which Goujon himself loved to design; for those who are regularly trained to design monuments of this class would never dream of a simple portrait being all-sufficient, when placed upon the cheapest, and of course meanest and plainest, kind of pedestal. They necessarily seek to enrich the pedestal or niche which is destined to receive the statue with various kinds of appropriate enrichments.

The fawn from Goujon's famous group of Diane de Poictiers, and also the separate figure of Diane herself, are both represented as in bronze, while the general composition displays in its various features marbles of various colours, the figure of Goujon being represented as of pure Carrara marble. The whole composition is surmounted by a rich cornice and pediment of semi-Classical character; and the effect of the entire design is that of a compact monument, very highly elaborated, yet having the one unpardonable fault of producing a general impression of not being as rich as it ought to be, in proportion to the great amount of ornament employed.

The design which gained the second Rougevin prize was that of M. Brune, another pupil of M. Questel. In this design, which is of the same character, that of a mural monument, the general effect is much richer, though the main outline of the composition is perhaps not so compact. The design of the statue is also inferior to that of M. Pascal's work. Between the columns which form the wings, however, very graceful features are introduced, which greatly add to the rich and genuinely sculpturesque effect of the whole. These consist of two nymphs bearing vessels of water, which they are pouring forth; the one from a vase, supported on the hip; the other from the shoulder. They are, if we remember rightly, taken from the graceful *fontaine des Innocents*, one of the best works of Goujon, and from the last-named of these graceful figures, it may be remarked, or from an involuntary reminiscence of it, M. Ingres undoubtedly conceived the first idea of the exquisite picture, "La Source," so much admired in our last International Exhibition. At the feet of the sculptor's own statue lies the torso of the famous Diane, still incomplete, and wanting the last touches of the ever-graceful modeller. The only defect of this last feature is that it is too small. The enrichments of the niche are very carefully wrought out, and full of artistic thought and treatment; every spray of ornament and every enriched moulding being conscientiously studied. The pediment, which forms the raised centre of the composition, is interrupted (viciously) in its rise to the culminating angle by breaking off into scrolls, each side forming a sloping support for a recumbent figure, after the manner of those introduced in this way by Michelangelo in the chapel of the Medici at Florence. This not original device affords the means of introducing reproductions of two more of the works of Goujon; but then the models in the Medicean chapel which have furnished our young designer with his idea are too well known, and they are, moreover, too entirely unapproach-

able in grandeur of conception and execution, to bear repetition at the hands of a novice without rousing the critic to warn the tyro, however strong he may be destined to become, against trying on the clothes of the giant till he is big enough and strong enough to wear them.

In London we cannot hope to improve until this special branch of the fine arts, combining, as it should do, the labours of the architect, the sculptor, and the ornamentist, each of the highest kind, shall be better understood.

We have all the raw material ready to hand,—plenty of artistic talent, which only requires a course of the requisite kind of training. When this training shall have produced a band of competent young artists, full of enthusiasm to go to work, let us have competitions, under wise management, for a series of public memorials, worthy of the truly great and useful among our forefathers,—Caxton, the first English printer; Shakspeare, Milton, Wren, Newton, Hogarth, Reynolds, James Watt, Stephenson,—in short, our great men of every class. We may by such a course hope to become the possessors of a series of national monuments and memorials worthy of the nation; that is, if the great carbuncle of jobbery be fairly and clearly cut out from the system. As a proof how inefficient both architects and sculptors have proved in the design of decorative public monuments when the kind of art necessary to produce them is not taught, we may recall the circumstances under which the great national monument of Russia, recently erected at Novogorod, was produced. At a public competition, open to Russian artists of every class, M. Mikeshine, a painter, was the successful candidate; his design alone realizing, in its combination of picturesque richness with architectural grandeur and sculpturesque refinement, the ideal which the Russian Government had formed of what such a work ought to be. We have a fancy that some of our great scenic painters,—David Roberts, for instance,—might produce a successful design for a grand and generally impressive monument, if led to attempt it in combination with an architect. Both sculptors and architects were associated with M. Mikeshine, to enable him to carry out his work with all the advantages appertaining to tested technical skill in the various departments of the work; but the supreme directorship was left with M. Mikeshine, in order to insure the realization of his design according to his own picturesque conception. Had Russia possessed a number of art students trained to the design of monuments of a memorial character, it is hardly likely that the dashing sketch of an imaginative painter would have secured the prize in such a competition.

LONDONERS.

THE returns of the Registrar-General are full of interest, and will afford feasts of facts to future historians. If the office had been an early English institution, we should have read the vicissitudes of our race through the intermediate centuries by a brighter light than that afforded by chronicles and pipe-rolls. We have occasional notices of the causes of the death of kings and princes,—how they were starved to death, or stabbed, or smothered, or blinded with red-hot pincers, or struck on the head with a pole-axe, or drowned in wine, or how they fell on the battle-field pierced with arrows or covered with wounds, or lost their heads on the scaffold. But, with the single exception of the Plague, we are ignorant of the manner of death of the millions who have gone before us. We hear, too, occasionally of numbers—of Jack Cade's immense mob,—the mob, 300,000 strong, under Wat Tyler,—of a million of men perishing in the wars of the White and Red Roses,—of thousands falling in Welsh, Scottish, and French battles; but we have no definite knowledge of local populations. We may judge of the interest that future ages will take in the reports of the registrar of our own times by that we should feel could we turn to a record of the annual births, deaths, and marriages of the Plantagenet period.

But the Registrar might give us still more curious information. It is not enough for us to know that there are upwards of three millions of human beings in London. We would inquire whence do they come? How many of these are Scotch Londoners, how many Welsh, how many Irish? and, subdivisionally, how are the counties represented in London?

A large proportion of the population of London should be looked upon as picked men, because every day the ranks are recruited from the most promising sons of country families: comparatively few are Londoners proper. The skilled mechanic whose indentures have just expired makes for London: the tradesman who wishes to take his son into partnership sends him first for a few years' experience in London: the country attorney articles his son to a London solicitor. The chances are ten to one that the most courageous, energetic, self-reliant of these young men settle in London and work their respective ways to competence: the more yielding natures return to their native towns. The population of London is recruited, too, by those whom death or misfortune has turned adrift to seek new homes. In due time all these people become Londoners. They are absorbed into the mighty mass, and are never prominent upon its surface; but they are on it nevertheless, and help to give new impetus to it.

Could we inquire at every shop-door in any of our principal streets, we should find that few of their owners were bred or born in London. Take the sunny side of Oxford-street, with its broad white pavement and boundary of bright shops, its roar of passing omnibuses and flash of cabs. That bald-headed old gentleman, with his elbow resting on his window-frame, fifty years ago guarded his father's sheep from wolves on a Welsh mountain. His next-door neighbour is the son of an innkeeper in a Scottish village; the next the son of a Suffolk sailmaker. This jeweller's father was a Buckinghamshire farmer. This grocer could tell of nights at sea on board his father's herring-boats off Yarmouth. The owner of those festoons of fretted lace, so deftly placed on backgrounds of gorgeous velvets, owns quaint, gabled, pebble-paved Shrewbury for a birthplace. Yon furrier, whose sables and ermines a monarch might envy, calls Poland his "faderland." Here and there we should find shops occupied by men whose fathers had lived in them before them; but the instances would be proportionately rare. Or take one of the narrow, dingy back streets, with its perspective hazily terminating in another back street, and in which there appears to be a perpetual "partial eclipse." The song that tailor is humming, as he sits sewing close to the window to catch all the light he may, is German. His little yellow-haired daughter is humming it, too, as she comes out of the house on her road to school, close by. But the book in her hand is English, and it is unlikely that she will ever know more of Germany than the songs and tales her father tells her. On the floor above the tailor, lives a widow's cap-maker, that is to say, a worn-out little man, who daily plods from milliner's shop to draper's shop, all over London and its suburbs, with a large black, shiny, shabby leather-covered basket, nearly as big as himself, to sell the muslin mysteries made by his wife and her out-door assistants. This man is the only Londoner proper in the house, for the second-floor is occupied by a journeyman joiner and his wife, from Hampton. The pianoforte tuner next door comes from Canterbury. He came to town long ago to work under one of the great "makers;" and, by a transition not unusual, has turned into a tuner. Canterbury would be no field for him now. He dreams sometimes of the cathedral, the shadow-flecked cloisters, the ancient gateways, the red-coat-dotted streets, the green pastures and still waters, but means to die a Londoner. His two rooms are on the ground-floor: they are curiously pervaded with pieces of green baize, odd cases opening like diptychs, and showing musical instruments enshrined within, calamanco bags, with the tips of violin sticks peeping out of their necks, tuning forks, rings of wire and catgut. The first-floor over them is advertised as "furnished apartments to let," and changes occupants nearly every week. The second-floor is tenanted by the landlady who, to the scant profit gained from the letting of these apartments, adds that of staymaking. She is the widow of a Government clerk, who was tempted from the heathery wolds of Yorkshire, by the offer of an appointment worth 80*l.* a-year. And so on from house to house. The focussing of foreigners in the district of Leicester-square has been often remarked; and there are courts with populations that are exclusively Irish to a man. The early education and impressions of all these men would imbue their lives with distinct tints; but in their reminiscences there would be generalities which would be shared by all, and quiver in the hearts of all alike; for although every man taken apart is unlike all others; all men, taken together, resemble each other. Nor are their several nationalities and provincialisms effaced without the wear and tear of time. For years after a Welshman arrives in London, he weekly makes his way to the little Welsh chapel in Jewin-crescent, where there is a Welsh congregation, and where the Welsh language is spoken with the purity of the dew upon Cader Idris, and where he is sure to see the latest arrivals from his native land. And so, too, with the natives of other countries. There are Scotch, French, German, Bavarian, Spanish, Greek, Russian, Swedish, and Swiss chapels in London, quite as regularly attended. In the same way Northumbrians turn to the Hotspur Club as to a tryst, and read the *Alnwick Mercury* and *Newcastle Journal* before the *Times*. The Registrar-General might tell us the exact composition of the sinewy, stalwart, enterprising population called Londoners.

THE LATEST EDITION OF CHAMBERS'S TREATISE.*

IF the publication of a cheap edition of Chambers's Civil Architecture should lead to increased study of the work, enriched as it was greatly by the introduction and notes of Mr. Gwilt, a considerable service may prove to have been rendered to our art, and very opportunely. The last editor, Mr. Leeds, indeed has not contributed much in amount, in notes which he has appended to some of the divisions of the treatise; and the notes are in part recapitulatory of matter from his hand, which has at various times appeared amongst writings acknowledged as his, or which have been fairly attributable to him. Seeing the value which there is however, in the matter, both that now appearing, and that in his excellent little book, the treatise published by Weale, on the Orders, we regret that Mr. Leeds has not been allowed to supplement the labours of Gwilt to the extent which his own stores of thought, and the results of a quarter of a century's researches by others since the date of Gwilt's edition, would have admitted of. He has not even named his treatise on the Orders, a work which more than any other on the subject, would be capable of correcting errors that linger, as to the Orders constituting the sole matter of classical architecture; or those of variously prejudiced persons, that the Orders must not, or cannot, be altered; or those, most recently prevalent, that the Orders as of Vignola, Palladio, Chambers, or some other master, can be of no value whatever towards the architecture of the future. The plates of the present edition of Chambers are those of Gwilt's, transferred to and printed from stone; and considering an inferiority of result, which makes considerable difference where scale is small, the edition will not be of much use to those who possess the original one of Gwilt, together with the treatise on the Orders by Mr. Leeds. Therefore, if we express any satisfaction at the appearance of such an edition as the present, we must be allowed to hope that the publication will not stand in the way of the appearance of such a treatise as Mr. Leeds could supply, on the comprehensive subject of those styles of architecture of which the Orders form part. Publications which either, only add to the number of books, or hold the ground against something better, are to be regarded as evils, rather than sources of good. The present edition of Gwilt's Chambers appears to have been published originally with some of the numbers of a periodical, in 1860, though not so stated except on the plates.

Mr. Leeds has added no note to that part of the volume which comprises Mr. Gwilt's introduction, and scarcely any to the opening chapters of the original treatise. He might have corrected one slight mistake which there is in several of Mr. Gwilt's representations of orders from chief examples. Mr. Gwilt shows as crowning members of the entablature of the Parthenon order, the echinus and fillet which are the crowning members of the raking cornice of the pediment; whilst a fillet and bird's-beak moulding, of the corona, which carry antefixæ, form the real termination of the entablature of the flanks (as of course of that of the fronts also) of the temple. The crowning members of the Parthenon pediment, usually de-

* "A Treatise on the Decorative Part of Civil Architecture. By Sir Wm. Chambers, K.P.S., F.R.S., F.S.A., F.S.S.S. With illustrations, notes, and an Examination of Grecian Architecture, by Joseph Gwilt, Architect, F.S.A." Revised and edited by W. H. Leeds. 4to; pp. viii. & 336; plates 11 & 54. London: Lockwood & Co. 1862.

signated together as *cyma*, from the form in other examples, are returned horizontally only a very short distance along the entablature of the flank, or just enough for a single lion's head. Mr. Gwilt's crowning "cyma" (*cyma recta* and fillet) also marked "restored" in the representation of the Doric order of the Temple of Apollo in the Island of Delos, and similarly shown in his plate of the Ionic of the temple on the Ilyssus, and in that of the Minerva Polias order, must be so indicated in error. The Greek system was to confine these members to the pediment, and to place the antefixæ of the flanks immediately upon the fillet of the corona, as we have said, and as they are in the monument of Lysicrates. The other method, continuing the crowning mouldings of the pediment as those of the flanks, was Roman rather than pure Greek.

Notwithstanding that some expression of regret has appeared necessary, we must say that the notes which the present editor has added to the work, may be read with advantage. He has no extraordinary admiration for Chambers, and no respect whatever for Vitruvius as a teacher,—considering his influence to have been disadvantageous,—and he is anything but a defender of the practice of Italian architecture as it has been in this country, unless as at the hands of Sir Charles Barry. But he perceives that, if any style is to be regarded as either worthless for lessons, or exhausted and incapable of serving as a basis for, or contributor to, future art, such style is not any one of those which are called Classical. The name "Italian" has led people to ignore facts both of previous centuries, and of the present day; and which were, and are, those of architecture throughout the length and breadth of European civilization, and in the New World no less than the Old; whilst the designation "Revival" has led to forgetfulness, incomprehensible in educated architects, that the architecture in Italy and France from Brunelleschi to the present day, has exhibited a succession of *inventions*, and no mere reproduction of Roman examples, as the argument, if it mean anything, of those who depreciate the "Italian," would have us suppose. The Greek orders, within our recollection, were regarded as things which if used, could not receive any addition or modification. Yet, in the antique, the variety in the small number of examples, as in the Ionic capital, was considerable; and every discovery since the time of Stuart and Revett, has tended rather to show that there was entire liberty, than that invention was subject to trammels of orders or of rules. Even the method of arranging the proportions of an order by modules seems to be about to be no longer admitted as consistent with practice of the Greeks. Mr. Leeds has not now alluded to the evidence which the Germans have afforded to the modern capabilities of Grecian architecture; though he may have done so on other occasions.

Precision of thought, or clearness of ideas, without which perspicuity in the language of explanation is impossible, is served by good nomenclature, as we have often remarked. The want of such a nomenclature has been felt by every conscientious writer on architecture; whilst also it has had perhaps the chief share in alimenting controversies wherein men forget the pursuit of art in that maintenance of dogmas so apt to result from study restricted to that of a single style. Mr. Leeds, as he shows in this new edition of Chambers, has done something, by contributions to our nomenclature, to induce accurate conceptions of things. His term *fenestration*, now generally adopted, has even helped to direct attention to the quality which, most of all the attributes of the architecture of the so-called Revival, gave it the character of original style, the quality which it was left to Barry in this country, to exhibit in erected buildings. The term *astylar* applied to composition where the effect is obtained, without the use of columns, and *mycrostylar*, where the columns are subordinate to decorated fenestration, are also useful. The designation *anthropomorphic pillars*, to comprise Persians, and Caryatides, has also something to be said in its favour. *Intercolumn* for the space between two particular columns, in preference to *intercolumniation*, which would be reserved to the manner of spacing the columns, or proportion; and *portal* when, as often, more exact than *doorway*, or than *door* (which last even, is used sometimes where doorway is meant), are others of Mr. Leeds's additions. He has spoken in their favour in his notes in the body of the present work; but he has not inserted them in the Glossary at the end. *Eumorphic* is an adjective which he finds very useful. *Quadrantes*, for square columns, or piers which show each face as a pilaster, would have a form in the singular that would be scarcely distinguishable from the word signifying the quarter of a circle. *Inter-fenestration* is a term which he would use for the spacing of windows; and *hyper-fenestration* for an arrangement of ceiling-lights.

The ill-effects which can result from an original blunder, and the connexion between false ideas and retention of a term no longer correct, are strikingly shown in the designation, "Orders," which we do not know how to get rid of. Architects may have now a restricted sense of the term; and possibly, even the public, presented everywhere with architecture of some sort, in which the Orders are wanting, may have become disabused of a notion that these "Orders" formed the whole of architecture. It is unquestionable, however, that the art has been retarded by the difficulty of abandoning the term. The editor observes,—

"It is not altogether without reason that the hitherto-received as orthodox doctrine of the Five Orders has been of late brought into disrepute. Not only does it authorise, but even insists upon, not only the most servile, but the most mechanical copyism. Dispensing with, even prohibiting, any exercise of the artist mind, such system reduces what ought to be design nearly to the level of manufacture. What are termed Orders ought rather to be regarded as Classes of columns and their entablatures, which, though conforming respectively to certain normal proportions, and preserving certain characteristic details, admit of great, almost illimitable diversity.

Far better would it have been for Modern Classic had the writings of Vitruvius never been brought to light, or else estimated at their real worth, instead of being regarded with superstitious reverence.

The division of the Orders into five gives either too many or else too few. Too many, because it makes distinct orders of the Corinthian, and that variety of it invented by the Romans, and called the Composite. The same may be said of the modern Tuscan and Doric orders, since they plainly enough belong to one and the same general class: or else, if each strongly-pronounced variety of the same original type is to be accounted as a separate order, the orders might be greatly and also very inconveniently multiplied. There are, for instance, authentic examples of the Ionic which have nothing in common—are altogether dissimilar in expression, except that the capital is voluted. The same may be said of the so-called Corinthian or foliaged capital order, to enumerate all the varieties of which would be no easy task. Let it suffice, then, for comparison's sake, to place only two of them in juxta-position: the Tivoli example of Corinthian and that of the Pantheon, or else that exhibited by Chambers himself as the technically-correct representative of the order. Hardly do we need stronger evidence to convince us that it is possible for striking varieties to be produced which, however strongly marked may be their differences, partake alike of the same generic character."

The Ionic elsewhere, he regards as not clearly traceable to the columns at Persepolis. The question is one on which it seems to us, much more might be said, taking probable dates into consideration, than has been said by Mr. Fergusson. But in undervaluing evidence of some connexion, Mr. Leeds seems to us to overlook the original argument respecting the capital, and the evidence of the fluted shaft.

We are inclined to go farther than he does in the comparison between the Italian voluted capital and the Greek; for, we consider, that however beautiful was the Greek form for the position of columns *in antis*, the capital of the angle column in the Greek prostyle or peripteral plan, with one volute obliquely placed, was a bungle and a deformity.

On the subject of pilasters, or antæ so used, Mr. Leeds, like other writers who say there is no Greek precedent for them, is not strictly accurate. There is one precedent; and though only one, it may be quoted with advantage to questions which he has touched in his "Note on pilasters and antæ." The example, and this is not the first time we have had to mention it, is in the Erectheion. The Greeks also used the square columns, the "*quadrantes*," to the value of which Mr. Leeds has usefully called attention. There is one example in the Choragic monument of Thrasyllus; and the plan of the Parthenon in Mr. Penrose's book, affords some slight evidence that the form was used in the interior of this latter building.

Speaking of arcades and arches, Mr. Leeds remarks that both impost and keystone are essential to the full expression of an arch of any magnitude; and he instances the "tame effect" from the want of them in "the otherwise noble arch" on Constitution-hill. Rustication, which has been tabooed by writers of a certain class, he speaks in favour of, rightly giving amongst its advantages, that of its producing "richness of surface, and what in architectural language is called *colour*." There are more varieties of it, he shows, than have been introduced into recent buildings. In speaking of sculpture in pediments,—which he would restrict to three figures and ornament, on the ground that the angles with crouching figures cannot be successfully managed,—though the view may be a not ill-founded one, he seems to us to have made an omission in not directing attention to a certain method of treatment, as by the most experienced architect-sculptors, which overcomes much of the objection of the confining framework of mouldings. The standing figures should be so tall, as, with the whole composition in entire relief, to allow some of the heads, or other parts of the composition, to intersect the line of the bed-mould, or even corona, as seen from below. However, there are many crowded pediments that would have been the better, designed as to their sculpture, on one of the methods which Mr. Leeds and Mr. Garbett have recommended.

In his note on balusters, Mr. Leeds remarks on the difference between balusters and columns, in the form, as showing that into what is pleasing in each, the point of scale enters; since the form of either could not be adopted with the scale of the other.

Mr. Leeds's notes on doors, on windows, and on niches and statues, contain some valuable hints. He speaks of the doorway in the west façade of the Bank, as having "not its rival in the metropolis" for *grandiosity*. The treatment of the doorways under the portico of St. Martin's Church he condemns; because the centre doorway, from being arched, yet not rising higher than the others, shows as positively lower. As to pediments over doors that are within a building, or even under porticos, he considers it is not altogether without reason that they are objected to. Distinction between exterior and interior, in design, should be observed; and opportunity should be taken to increase it. This might be by means of a finial of scrollwork, perhaps spreading out below to the extremities of the cornice. He observes of windows, that whereas sashes were formerly clumsy, we have now got into an opposite extreme of dispensing with bars altogether. The effect, he does not consider the best, and remarks that Barry avoided windows divided only by the meeting rail of an upper and a lower sash. He objects to Hosking's condemnation of "Venetian" or three-light windows.

Whatever may be our conclusions on the subject of sculpture in pediments, there can be no doubt as to those of Mr. Leeds on that of statues on the summit of a building. He would place good sculpture where it can be seen, say in a niche, where it is framed in, and relieved by background of shadow, not seen against the sky, as well as foreshortened from below. He somewhat overestimates, in this, the force of his argument: the case is not quite like that of a statue with a window as background. We might refer him to the effect of the group on the eastern pediment of Covent Garden Market. Could anything better be substituted, considering the slight distance from the spectator, and the background as generally or in whatever sort of weather? Vase-forms, or pinnacles, which might be designed,—though we must say, not even Barry quite succeeded,—Mr. Leeds prefers to statues. The niche, scarcely known to the Greeks, he remarks was a happy invention; and he shows that it is capable of great variety of treatment, and of being made to contribute largely to internal effect.

Chambers's treatise is rather deficient in matter relating to interiors. Mr. Leeds gives one of his longest notes to ceilings and ceiling-fenestration, which last he rightly regards as a hopeful source of future effect. The difficulty in getting balance to windows which are on one side only of a room, is certainly considerable. We should agree with him, that art of the first class may be thrown away when the ceiling is treated as a picture. Even the French, whose recent architectural productions would have served Mr. Leeds in some of his arguments, have not yet learned to avoid the mistake of the old masters. But we have seen many a ceiling, as in French *cafés*, painted as a sky, and sometimes with birds flying, which we were not disposed to wish otherwise treated. Such cases, where there is no imitation of balusters or other architecture, and no chandelier, are distinct from those painted with historical subjects. How far he may agree with us, we cannot stop to consider. He is a great admirer of Soane's talent in interiors, as exhibited in the house in Lincoln's Inn-fields, where one room has a *velar* ceiling, — or one domical over a square plan, and having what would be the diameter or span of the perfect dome corresponding with the diagonal of the square,—the springing of the dome or pendentives being in this case, from the floor.

The author of these notes has not omitted to show how much he dissents from many of the architectural tendencies of the day, such as the "rampant Gothicism," "which seems to affect, as its characteristic, the veriest *sans-culottism* in regard to architectural design and composition." "The

very fact" of the Anglo-Classic, or Anglo-Italian, "being anti-Mediæval in character," he says, "ought to recommend it to us all the more, since all our social sympathies, and feelings, and tastes, are enlisted on the side of Modernism, in opposition to Mediævalism;" whilst it does not follow because further advance in a style has not been attempted, that such advance is impossible: we should be rather pleased to see that so much is left to be done that has been overlooked. He thinks it remarkable that Italian-Gothic should have been taken into especial favour by those who object to Italian Classic. Objection on the score of foreign origin surely applies to a Gothic which is decidedly inferior to that of our own country, and in which verticality and the gable are not strongly marked. The gradual lowering of the arch in the apertures of domestic buildings, till at length it was discarded for the square-head, more accordant with horizontal ceilings, he deems worthy of notice. Symmetry, and the evidence of artist-mind, are necessary in fine-art architecture; and these he does not recognize in the irregularity of the Gothic. It may be difficult to reconcile such requirements of external design with those of internal plan; but such difficulties may lead to happy results; and at any rate, if external design is to give way, we have, he says, a right to expect that the *planning* shall not be the mere tacking together of room to room, which is the best that can be said of the distribution of more than one recently-erected large country mansion.

NEW MATERIALS FOR THE LIFE OF JOHN FLAXMAN.*

I NOW give *entire* the valuable annotations of Flaxman's sister-in-law (Miss Maria Denman) on my father's Life of Flaxman. I need hardly add that Miss Maria's criticisms and additions appear in print for the first time:—

Page 275. Mr. Flaxman was of a quick and hasty temper when young, as well as of an enthusiastic mind; but corrected by good sense and sound judgment when grown to manhood.

Page 276. He never was under the direction of Mr. Roubiliac, or any one else.

Page 277. Mr. Flaxman befriended Blake, as well as many others, but without being assisted by any one, besides recommending him to many of his friends.

I believe the story about the crutches to be an entire fabrication: he was always reckoned a delicate and weak child, but not *infirm*.

Page 279. The noble lord, who lacks both sense and good feeling, shows the narrowness of his own mind by endeavouring to turn into ridicule this high-minded and talented man, whom he found so much his superior, and whose worth he could not understand. He has conjured up this story from some very trifling occurrence (having just wit enough for this), in order to gain that attention, when a draft on his own resources would not have been honoured. Mr. Flaxman was as free from *personal* vanity as any man living.

Page 279. *This story of Mortimer's is wrongly told.*

Young Flaxman was receiving lessons in drawing at school. One evening, a friend coming in, the lad showed him a copy of an eye he had been making from a drawing by his master, when this friend asked him "if it was a flat-fish?" This jest gave the youth so mean an opinion of his master's abilities, that he could not be prevailed upon to take any more lessons. Nor do I think *Mortimer* was the friend.

Page 281. Mr. Flaxman was a good Greek, as well as Latin and Italian scholar, and was not a bad French scholar, though he did not speak it well. He always made his designs from the original text, unless he had to compose subjects to accompany translations.

Page 282. It was the year after his death that the statue of Kemble was exhibited at the Royal Academy.

Note to page 282. The three small busts of Mr. Flaxman, sen., Mr. Howard, and Mr. Hayley, were modelled soon after Mr. Flaxman came from Italy.

Page 285. Conceit was never the characteristic part of his character. There seems but little knowledge, judgment, justice, or foresight in the Academy at this time in this affair.

Page 290. There was nothing like despondency in his composition,—quite the reverse. Courtship and matrimony rather doubled his diligence than retarded it. Mrs. Flaxman never called her husband "John" in her life; it was "Flaxman;" nor did he ever call her "Ann" (this mode of speaking of them totally changes their character); it was either "my love," or "my dear Nancy."

Page 292. *You must be careful how you quote [Nollekens] Smith;*—he had too coarse a mind to understand Mr. Flaxman's ways, and knew very, very little of Mr. Flaxman's affairs. Mr. Flaxman never was a collector of water-rates,—at least, I never heard it; but I do know that he scrupulously avoided all parish business throughout his life. The ink-bottle story, as well as many more that he and others have related, must belong to some one else.

Page 293. The monument to Collins was executed in 1795; consequently, not till after Mr. Flaxman's return from abroad.

The group of Venus and Cupid was not his favourite work: the poet Collins and Miss Cromwell were.

Page 296. It is not true that he transcribed subjects from the Greek vases, for his Homeric works; this was done in part for what he did for Mr. Wedgwood.

Page 303. The *group of Athamas** was, by some unaccountable accident, lost sight of for many years. Nor did it come to England till within these few years, when it was purchased by the present Lord Bristol, and sent to Ickworth.

The restoration of the group of *Hercules and Hebe* was an order from the late Mr. Thomas Hope. Mr. Flaxman never approved of it himself after it was finished: therefore he refused to work it in marble, *though pressed to do so by Mr. Hope;* nevertheless it was a general and a deserved favourite of *all* who saw it; and it is greatly to be regretted that it was destroyed. This you would have said had you ever seen it.

Page 321. The basso relievo of "Christ raising the daughter of Jairus," was designed for a monument to the memory of a young lady in 1822.

Page 321. "Feed the hungry," and "Comfort and help the weak-hearted," were also of a much later date.

Page 322. It is not till after an artist has been elected an Academician that he is expected to present to the Royal Academy a specimen of his art.

I no not understand the drift of your tailor story in this place. It seems to me what the painters call "out of keeping."

Mr. Flaxman did not desire to be employed on national works. He infinitely preferred the employ of private individuals who had good sense enough to leave the artist to his own taste and judgment, which is not always the case with committees. But on this occasion, Mr. Flaxman, with other artists, both sculptors and architects, were called upon to make designs for a national monument. He not only made a model of *Britannia Triumphant*, but two other designs, one a triumphal arch, the other a naval pillar, besides writing the letter you speak of; but, at the request of the committee, in this act he was not singular. Other artists did the same, and when they were all brought together in one room they formed a very interesting exhibition; and as a large subscription had been raised, it was thought something would be done. But as you say [p. 323], "The *committee deliberated* and dined, as committees generally do, and then as deliberately let the *money* as well as the matter drop;" but whether into their own pockets or any other strong box, remains a secret to this day. On this subject history is silent!!! and there this matter ended. Nor did the failure of this plan grieve *Mr. Flaxman*, except in a national point of view, for it had taken up much of his valuable time from more important business, and the *remarks you have quoted* my brother might well smile at—they are such as envy flings at superior merit.

Mr. Flaxman did not execute the monument to Walker and Beckett.

The *statue of Earl Howe* was purposely left unfinished, in order that it might be finished working in the light it was to remain in, which was very different to that in his own study.

And with respect to national monuments, we ought to take into consideration how artists are tied down by the commonplace notions of committee-men who are, on these occasions, lord and master.

Page 326. "It was the practice of this eminent artist to work in marbles from half-sized models." This was not altogether the case, and when he did it was from necessity, and not by choice. All his early works were modelled *full size*, as well as many of his latter ones. The whole of *Lord Mansfield's monument*, for instance, and others of the same period, were modelled full size; and only those that required a greater height than he had in his own study were modelled half-size, and that on account of not getting false perspective by looking down on the work; nor did he do it to save expense: so much was he the other way given, that I have known him to add in one instance only marble and work to the amount of 200*l.* when he thought it would improve the composition, and that at his own certain loss; and his mode of having his models put together was precisely the same as you recommend.

Page 353. Mr. Flaxman did *not* select from Pope or any other translator, but composed and designed his Shield of Achilles *entirely* from the *original Greek text. It is a very great error to say "he was not a good Greek scholar."* The subjects on the shield (which are seven in number) are continued without any visible division. The faint waving lines you speak of are only the seams, unavoidable in a cast from a piece-mould, and which on my cast I would not have removed.

Page 355. *Kemble* is in the character of Cato.

Page 355. *The statue of Burns* was to be a portrait of the man. Considering this, I think he is made as good-looking a youth as the subject would allow. The first sketch that was made for the statue I think was very preferable: so thought Mr. F.; but that was rejected as not being like the man.

Page 357. *Mr. Flaxman* had the highest regard and friendship for Mr. Howard, both as an artist and a man; but *his old friend Stothard* he could only admire as an artist.

Page 361. "Flaxman usually rose at eight o'clock,—breakfasted at nine," &c. Mr. Flaxman was always a remarkable early riser. He usually rose at six or soon after, and frequently much sooner; he was mostly up first in the house, and generally first in his study; he mostly breakfasted at eight, and sometimes much sooner.

Page 357. The visitor with his book I received myself one morning, my brother being out.

Page 358. Mr. Flaxman had taken a most violent cold at a friend's house. He had medical assistance; he was a most dreadful sufferer for the last three days, which he endured with a saint-like fortitude to the latest moment of his earthly existence, which was terminated in my arms; nor did he ever wish or ever have other attendance than what he received from her whom he and his wife had adopted as their daughter in her early life. His sister, Miss Flaxman, had lived comparatively but a short time with them, and that till latterly only as a visitor.

On his Wife's *sister* only devolved all the duties and cares of his family, not only after, but long before the loss of this most inestimable wife, and between Miss Flaxman and myself subsisted the strongest and warmest friendship.—*From Miss Maria Denman.*

Flaxman made two standing statues (portrait-statues without accessories), and two only. Their influence upon Chantrey was immediate and lasting. I refer to the bronze Sir John Moore (of Corunna) in the open air in Glasgow, and to the marble Sir Joshua Reynolds in St. Paul's Cathedral. Careful casts of these fine statues should be added *at once* to the Flaxman Gallery in University College, London: they would add to Flaxman's reputation, and assist materially in explaining the scope and characteristics of his genius.

PETER CUNNINGHAM.

* Concluded from p. 38, *ante*.

* The Fury of Athamas, a group of four figures above the natural size, executed for the Bishop of Dery, at Rome, price 600*l.*

MANUFACTURES IN METAL.

THE jury report on Class 31 of the International Exhibition is one of the longest and, we may add, most complete of those issued. Mr. Alfred Tylor, who drew it up, has in the course of it given some observations on the effect of the patent laws, the influence of architects in improving the quality and design of articles in metal, and has treated at some length of the education of those classes who are engaged in manufacture, at the express wish, it seems, of some of the foreign members of the jury, who propose to translate his report for the benefit of their respective countries.

We give a few paragraphs from the report, and note that it is published separately by Bell & Daldy.

Bronzes.—"The Japanese and Chinese bronzes show great perfection of workmanship. There are numerous specimens from Japan, in which the moulding operation is accomplished by inclosing a real basket in sand and then burning out the wood. When the molten metal is poured in it fills the mould, and becomes solid where it touches the sand first. The remainder of the melted metal is poured out as soon as the bronze basket is of

sufficient thickness, as is the case when plaster casts are made.

These imitations of natural objects in cast bronze are certainly in advance of anything old or new that has been produced in Europe. In the castings from baskets made of plaited grass the structure of the leaves is quite visible. Where the shape of the basket is simple, either with a wide aperture or with a false bottom, as in some specimens, the ashes might have been blown out of the sand mould after the basket had been carbonized; but this could not be done with the delicate handles of basket-work projecting from the baskets. The handles must have been cast first by the same process, or perhaps twisted and plaited out of strips of bronze. In one specimen I purchased, the bronze or copper wire which fastened on the metal handles to the wicker basket previous to moulding still remains, but of course burnt in, as the union of a piece of cold metal with metal in a state of fusion is termed.

This helps us to understand the manner in which insects with their extremities, and tortoises, are cast on the exterior of the basket, as in some specimens purchased by Mr. Moffatt, M.P., and I think General Malcolm. The insect or tortoise must have been cast either by the *cire-perdu* process, first in wax and then attached to the grass basket, and then moulded, and the woody matter and wax got rid of by heat and blowing; or the insect and tortoise must have been moulded in sand, heated, and then the animal and mineral matter blown away, then cast in bronze, and then attached to the grass basket to be moulded; the heated metal uniting with the cold in the sand-mould, and connecting the insect with the basket without any appearance of a joint.

It would be interesting to learn something of the antiquity of this process, which is the analogue of the cire-perdu process mentioned by Cellini, but superior in that the basket is a harder material than the wax, and would therefore bear more pressure without losing its shape. The grotesque figures of iron and bronze in the same collection are said to be of great antiquity—perhaps older than those forms employed by the Gothic architects.

Eastern patterns in woven goods seem to have spread centuries ago to such distant points, and to have remained up to the present time in general use. The Venetian glass and woven wire-work are now known to have had an Eastern origin; so that we can hardly see anything which assimilates to an Eastern form without imagining it is a copy, and not an original production of the Western land we find it in.

Zinc Bronzes.—The first cost of the plaster model and the metal moulds required for such imitation bronzes is of course considerable. Zinc figures are cast in metal moulds (which take to pieces), generally in several parts. These parts are soldered together with soft solder, and then galvanized and bronzed, and cost very little for wages and material—perhaps not one-fourth of the price of real bronze. They have formed an important branch of commerce, and spread many good examples of tasteful metal-work amongst a class who have not the means of purchasing more expensive works. The imitation cannot compete in quality with the real bronze; because, however well cast the zincs may be, they have the appearance of moulded works, the surfaces being left from the mould, and only the joints repaired; while the real bronze, touched in every part by the hand of the skilful chaser, has a life and vigour which the cultivated amateur can appreciate.

Electrotypes.—Among the French bronzes are some excellent exhibitions of galvano-plastique, or electrotyped copper, bronzed and silvered. The application of this beautiful process is attended with several difficulties which limit its application. An under-cut pattern cannot be electrotyped except in a mould of gelatine or some elastic material, because of the partings of the mould being apparent. Gutta-percha coated with plumbago is the material now employed. Some beautiful examples of the perfection of detail obtained by electrotyping may be met with in the exhibits of Christofle and Lionnet.

An ingenious plan is adopted to strengthen the thin material which is too light for use when taken from the battery, viz.,—by melting brass wire with a blowpipe and dropping it into the interior of the electrotype like sealing-wax, so as to give the requisite solidity. This process is peculiarly applicable to *appliqués* ornaments for furniture where flat ornamentation is permitted, and where delicacy of detail is required without undercutting or false coring; but at present, although it is easy to throw down by electricity a surface of brass on the copper, yet the surface cannot be lacquered so as to keep its colour. This happens because the brass has to be brightened by dipping in acid previous to lacquering, and a portion of the acid remains in the interstices of the crystalline deposit and oxidizes the brass in a few days, so that the surface below the transparent lacquer assumes a dark-brown colour. This renders the cheap process of lacquering inapplicable; and gilding, which costs twenty times as much, must be employed. If any plan could be discovered of lacquering electro deposits instead of gilding them, we might hope to see a particular kind of very highly-finished ornamental brass-work produced at a very low price. The master-pieces of chasing and repoussé work can be reproduced by the electro process, so that copies could only be detected from the originals by the aid of a microscope, and might be multiplied in metal as perfectly as impressions from an engraved plate are transferred to paper, giving delight and instruction to the public."

Iron Gates.—"The gates exhibited by Messrs. Hardman, of Birmingham, are, as a piece of pure wrought-iron work, as fine as anything in this class. The construction is very simple, consisting of wrought bars decorated with mouldings; the enrichments being formed of pierced plates of iron filling up forms marked out by slender bent scrolls, in which are again laid conventional imitations of foliage. No other metal or material is introduced, and no part of it is painted. As a specimen of iron work in the style of the fifteenth century, this work is not surpassed. The same grace and refinement that characterize this work are also seen in many of the smaller objects exhibited by Messrs. Hardman.

Messrs. Barnard & Bishop, of Norwich, exhibit some gates intended for the entrance to the bishop's palace. The piers are of cast iron, and the gates are enriched with imitations of natural flowers and leaves scattered in great profusion over the whole of the spaces between the bars. Whilst recognizing the labour bestowed on these gates, we must express our opinion that had they been designed by an artist more conversant with the many noble examples of metal work that are to be found in all parts of Europe, many mistakes would have been avoided, both in conception and mode of execution; and a greater effect produced with less expenditure of labour, and therefore cost,—a result always aimed at by the true artist, as one of his most important duties. The substance of iron out of which these decorations are formed is so excessively thin, and has been treated in such a manner, that we fear the gates will soon be injured, placed as they are to be in the open air, and in a position where they may be exposed to damage by violence."

Reproduction of Mediæval Work.—"We have an instance in the rapid improvement of Mediæval work, how soon an industry answers to the demands made upon it when money is forthcoming on the part of the public, and a guiding hand is applied by the architect. To this learned profession the Mediæval work of England is indebted for its regeneration. The bronze trade of France took its rise also under the direction of the architects of the royal palaces, and we may look for similar improvement in every branch of ornamental decoration when architects have funds at their disposal and take the trouble to direct the manufacturers and workmen, as it has been once in England, and as it was in the best days of Italy, when the architect was also sculptor, and did not disdain the complete mastery of the details of every branch of his profession.

The mechanical processes by which all this group of works have been formed do not materially differ, whatever may be the style or character of fine art that the producer may have given them, and are very simple. The metal, being first forged into bars or plates of greater or less substance and size, is then worked by the hammer into the forms required; the decorations being added to the essential and merely useful part of the object, principally by means of scrolls or applied ornaments, beaten out by the hammer and engraved on the surface; so that it will be better to consider these works in subdivisions, suggested rather by their decorative than mechanical distinctions.

The most striking peculiarity observed at first sight is, that the whole of the objects exhibited, with very few exceptions, present marked signs of their origin, and are separable into two great divisions—those that have for their type the works of the Middle Ages, and those which followed the forms of art which prevailed in Italy in the seventeenth and eighteenth centuries. To enter upon the question of this obvious imitation, and to inquire whether it proceeds from a general demand for works only in particular styles of art, or whether from the want of power in the workman to produce original designs, seems to us foreign to the purpose of this report; but it may not be without service to ask those interested in the state of the decorative arts in this country, and who are engaged in promoting their advancement, to give their attention to the fact. To compare works of this nature in such very different styles would lead to discussions which would be out of place here.

We may remark that the artists among the Greeks succeeded in producing their best effects by the most simple ornamentation. The Mediæval artists worked in just the opposite direction.

The Mediæval works consist of objects, for the most part, made for ecclesiastical use, and intended to be placed near the eye, which must be borne in mind in remarking on the skill with which decorations are applied, and the high finish and great delicacy of most of their details. It is gratifying to find that although in the Exhibition of 1851 some of the metal work shown may have been as highly finished as any produced on this occasion, yet there is a marked advance in the power of applying the resources of the art to accomplish the ends in view, and a greater boldness in the use of forms imitative of natural objects, without any falling off in the care with which the works are finished, or the labour bestowed in ornamenting them. Colour, which scarcely made its appearance in 1851, as applied to metal work, is now frequently used, either in a general painting of the whole surface, or in enamels, or by means of metals of different kinds, mingled with crystals and precious stones in the same object—modes of decoration very legitimate as applied to works in metal, and which it is hoped may be more extensively used in future."

"It is necessary for the skilled mechanic to be himself instructed in art, and the manufacturer must have the requisite knowledge, or seek the assistance of those who have received a sound education in it, to be able to produce with propriety and beauty any work he is called upon to produce.

Coarse, ugly, or feeble attempts at ornamentation,—for which English manufacturers have been so often justly condemned, and which the workmen of continental nations have been so much more successful in avoiding,—arise from a want of artistic knowledge on the part of masters and workmen; and we would urge upon those who are able to influence the producers of manufactured articles, either as having an especial acquaintance with the art of ornamental design, or merely as purchasers in the market, to demand that propriety and refinement of ornamentation shall be essential characteristics of all works on which even the least decoration is bestowed. The employment of artists skilled in design, and of mechanics who have sufficient knowledge of art to enable them to execute works designed for them without destroying their beauty of form or expression, would inevitably follow on the demand being increased for really appropriate decoration; and the works now requiring the assistance of foreign artists would in time find skilled workmen amongst our own people, fitted for the production of the finest subjects."

PHOTOGRAPHY EDUCATIONALLY APPLIED TO THE MAGIC LANTERN.

AN interesting and important practical paper was read by Mr. Samuel Highley, F.C.S., at the Society of Arts, Adelphi, on the 14th instant, on this subject. The paper was illustrated by various diagrams of convenient apparatus for lecturers and other teachers, whereby photography may be made more readily and efficiently applicable to educational purposes. Mr. Highley also exhibited, on a large screen, an extensive series of lantern views of scientific subjects, illustrative of the application of photography to the representation of geological, botanical, zoological, microscopical, astronomical, geographical, ethnological, biographical, and pathological subjects; and afterwards examples of the representations of the artistic works of Kaulbach, Schnorr, and Hogarth; together with groups of sculpture, as well as some specimens furnished by Mr. Charles Jones.

Towards the conclusion of his paper Mr. Highley made the following remarks:—

The advantages I claim, then, for magic lantern views over those in general use, when educational value is aimed at, are delineations truthful to nature and abounding in detail, cheapness, compactness, as compared with paper diagrams, and their utility in museums, when not in use for their legitimate purposes.

Beyond the department I have specially dwelt upon this evening, I may say a few words upon the educational value of stereographs, but only a few words, for every one must have felt their value; though unfortunately they have never been published in a systematic form so as to give them a true value for the purposes of scientific instruction; but, if systematically produced, the schoolmaster, the provincial lecturer, and the professor of natural history, might bring many unique specimens, scattered through the museums of the world, within the ken of their pupils: in fact, the treasures of our British Museum might be carried in a professor's coat pocket. Such productions ought to be accompanied by descriptive letterpress; and this leads me to the application of photography to book illustration.

I was one of the first—I believe *the* first—who applied photography in this direction,* but I feel bound to state that we can never look to the present method of producing photographic prints, if we wish to apply the art to the purposes of book-illustration, for the cost of each print is too great for popular educational adaptation; but there is a method to which I look with hope, viz., the photo-galvanographic process of Paul Pretsch. By this invention the counterpart of wood blocks can be produced from a photograph negative; and every publisher will, I think, back my assertion that this is the right and principal direction in which experiments should work; and I trust to see the day when Paul Pretsch's unwearied labours will, as they deserve to, be crowned with complete success.

In conclusion, I would say that every exploring expedition should be accompanied by its official photographer; that every national museum, observatory, and hospital should have its appointed operator; and then the hoped-for time may come when we can, in systematic manner, place the records of scientific travel, the transcripts of Nature's treasures, and the history of the progress of fell disease, upon the screens of our lecture theatres, the stereographs of our cabinets, and the pages of the books in our libraries."

* The *Builder*, we believe, was the first to suggest the illustration of books by photography.

PARIS.

THE interior arrangements of the new buildings for the Library of the Arsenal, and the restoration of the older structure, continue to be carried on without interrupting the service of the establishment. The works are at present confined to the façade of the Rue de Sully, which is being thoroughly pointed and repaired in the same manner as the rest of the building, now completely renewed.

Before the Revolution the Arsenal was divided into two portions, the "Grand" and the "Petit:" the latter exists entire at the present time, and is occupied for the manufacture of gunpowder and saltpetre: as to the former, nothing remains of it but the buildings of the Library of the Caserne de Sully. This establishment, which was in the time of Louis XIV. the most important of the kingdom, dates from François I., who converted it into a foundry of ordnance, and made use of storehouses, which he borrowed from the town of Paris, but never gave back. Under Henry II., saltpetre mills and various constructions for the artillery service were erected, but they were blown up by the explosion of 20,000 lb. of powder in January, 1562, in the time of Charles IX. These buildings were immediately reconstructed on the same spot, and subsequently Louis XIV. ordered the building of the Petit Arsenal. The Rue de l'Orme, the Rue de Sully, and the Place de l'Arsenal were then interior courts: on the Quai Bourdon and the site of the *Greniers de Réserve*, were the gardens.

REMOVAL OF ST. THOMAS'S HOSPITAL.

ON Tuesday afternoon a meeting of the governors of St. Thomas's Hospital was held at the London Bridge Terminus Hotel, for the purpose of receiving a report from the Grand Committee relative to the removal of the hospital. Sir John Musgrove presided.

The report submitted stated at some length the nature of the various sites which had been approved of by the Grand Committee, namely, Bethlehem Hospital; the Fishmongers' land, Walworth; Surrey Gardens; land at the back of Newington Church; Myatt's Strawberry Ground, Camberwell New-road; and the Lambeth Thames Embankment, opposite the Houses of Parliament.

The architect of the hospital gives the following

Summary.

No.	Names.	Acreage.	Approximate Cost.	Rate per Acre.
1	Bethlehem.....	11	£160,000	£14,545
2	Fishmongers'	8	46,000	5,750
,,	Ditto, with addition of plots A, B, C, D	13	104,000	8,000
3	Surrey Gardens, including Manor Tavern ..	14½	77,500	5,345
4	Ditto, with additions of Penton and Canterbury Places	17	100,500	5,910
5	Land at the back of Newington Church..	½	no estimate.	—
6	Myatt's Ground	30	39,000	1,300
7	Thames Embankment	7	no estimate.	—

On the motion of Mr. Tite, seconded by the Treasurer, it was resolved, after a long discussion, that the report be received, and "that the several sites be referred back to the Grand Committee for further consideration, with a view to obtain more information in reference thereto, and to report thereon, as well as with respect to any other site which may present itself in the meanwhile, to the next meeting of the governors."

Little was said in favour of any of the sites. The site at the back of Newington Church (nothing being known of price), appeared to have the strongest advocate.

The wildest of the propositions is that which includes pulling down Bethlehem, rebuilding it on other land elsewhere, and erecting St. Thomas's Hospital on its present site.

In the course of the discussion, Dr. Leeson, who holds with us the opinion that the main establishment should be a little way out of town, said his worst fears as to the Surrey Gardens building had been realized. No case of burns had been admitted that had not proved fatal.

We sincerely hope that the committee will still look further afield for a site.

A GOVERNOR, known to many of our readers, addressed some observations to us last week, on the communication signed "I. H. E.," in a previous number; but these reached us too late then for insertion. Part of them may still be usefully printed, as regards the general question.

The vital point for decision is whether the hospital ought to be rebuilt on some site in near proximity to its former position in the heart of a thickly-populated district, or at such a reasonable distance from town as to combine the advantages of a pure atmosphere with efficient medical supervision.

In considering the first part of the subject, we must not overlook the stupendous change which London has undergone since the hospital was first erected on the side of a bright and pure river, and in a comparatively open district; nor its present rapid increase as regards size and population. We must bear in mind, too, that Guy's Hospital still remains for the wants of the locality as well as of the city, and that universal experience proves the necessity of salubrity of situation and pure air, even to the healthy; or why all the present vast expenditure in drainage and the embankment of the Thames, or the legislative enactments for the regulation of trade works, &c.? But I will not weary your readers by specifying unnecessarily objections which their own minds will suggest. I would rather point to the great fact that the medical officers attached to the hospital were so strongly convinced of the necessity of a change of locality, even before the extension of the railway was contemplated, that more than once they so reported their opinion to the governors; and upon the railway being proposed, they added the weight of their testimony to the fact that, if carried out, *the situation would be rendered totally unfit for the purposes of an hospital;* and this opinion, which they repeated before the Parliamentary Committee, applies, as I think, with equal force to any situation within a mile at least of the whole southern bank of the Thames, owing to the great increase of late years in manufacturing works of an unhealthy character, and the density of population.

I might almost rest my argument for the desirability of a change of situation on the words of "I. H. E." when, in advocating the beneficial effects of the limited opening formed by the railway, he says it would bring along in its course "a broad river of fresh country air up to the centre of the densest population, enabling many thousands to pass quickly and cheaply to their suburban homes." He discourses eloquently and well of the great good of the railway lifting the poor from the alley and the court to more favoured positions, and of others to Blackheath or Lewisham.

With such right appreciations, I hope to receive his aid in the endeavour to secure to the suffering patients of St. Thomas's the fullest possible advantage of pure air; adding to it the quiet and retirement which a removal to some convenient locality in the adjacent country would so gratefully afford.

To remove some of the probable objections to the change, I would suggest an auxiliary hospital of moderate dimensions in St. George's-fields for the reception of accidents and cases of extreme urgency.

Admitting the importance of an hospital as a school of medicine; still that consideration must be subservient to the welfare of the patients. But it would, perhaps, be to the advantage of medical students even to spend a portion of their time in the country. The known liberality of the profession would prevent the hospital losing the advantages of the highest medical and surgical skill. The anatomical school should be altogether separated from the hospital. The removal of this blot from our great hospitals would tend greatly to their popularity and the mental quiet of the inmates. It may be remarked that a small proportion only of the patients of old St. Thomas's belonged to the neighbourhood: they mostly came from the country districts; showing that the removal to some situation out of town would not lessen the utility of the establishment.

I close my remarks with the sincere hope that all will weigh the subject apart from every prejudice, and with the single aim to benefit the poor and suffering patient, and to restore him as quickly as possible to health and strength.

Norbury Park. T. GRISSELL.

STAMPED ZINC WORK.

WE are asked to say that the plates of zinc and ornamental stamped zinc-work mentioned in our notice of the new warehouse in Bow Churchyard (p. 49, *ante*),* were executed by Mr. J. W. Tyler, of Wood-street, Westminster, who also executed the noticeable zinc roof, with dormers, in Piccadilly, nearly adjoining the late Mr. H. T. Hope's mansion. The latter was done under the direction of Mr. James Edmeston, by whom, indeed, the stamped zinc-work has been mainly introduced here. In Paris about 2,500 tons of zinc are now used annually for stamped ornament.

* The architects of this building were Messrs. Tress & Chambers,—not Chamberlain.

INSTITUTE OF ARCHITECTS.

THE extent to which one or two members of a government, parish vestry, or society's council, can commit their colleagues, and render them ridiculous, would be remarkable if it were not common. This was felt pretty strongly at the Institute on Monday evening, when a meeting was held to consider the recent foolish regulations to shut out reporters and prevent the publication in the journals of papers read at the Institute,—regulations passed in the dog-days, as we have been told, by a very small minority of a new council.

The president, on Monday, perhaps expressed the views of the majority present, when he said that, if he had been at the meeting of council, he would have opposed the measures: the principle involved was on the face of it unpopular in England; but, as the authors of them had taken trouble on the subject, he would give them a trial. At all events, after a discursive conversation, which, like the whole affair, has been aptly described by an old member as a "muddle," the regulations are to be allowed to stand. The reasons and apologies offered for them were, we are bound to add, of the weakest description: the real origin was kept out of view. The Institute has been much damaged by the transaction; but we have neither space nor inclination at this moment to speak further of it.

GLASGOW ARCHITECTURAL SOCIETY.

AT the last meeting of this Society, Mr. Alex. Thomson, the president, in the chair,

Mr. Jas. Boucher brought forward the following motion, of which he had previously given notice:—

"That it is the duty of this Society to watch over all public competitions which may take place in this city and neighbourhood, in order that the terms or conditions may be faithfully carried out, and any infringement of the same by the competitors or promotors of such competition be brought under the notice of this Society."

Mr. T. Gildard seconded the motion, and commented at some length on recent doings with reference to the Wallace competition.

Mr. Stevenson suggested that, by way of giving the resolution a more practical shape, it should comprise instructions to the Council of the Society to watch over all public competitions.

Mr. Boucher adopted the suggestion, and accordingly the following words were added to his resolution: "And it is accordingly remitted to the Council to carry out the object in view."

The resolution, with this addendum, was unanimously adopted.

Mr. Wm. M'Adam afterwards read a paper on "Imperishable Material applied to Sash and other Pulleys, Economical Sash-weights, and Improved Methods of Hanging Windows." The material proposed by Mr. M'Adam for pulleys is vitrified stoneware, which has the advantage of being proof against the destructive action of the weather. For window-weights he substitutes a cheap material manufactured out of various kinds of refuse; and he suggests an improvement in the mode of hanging windows whereby one weight can be made to answer the same purposes as two applied in the usual way.

NORTHERN ARCHITECTURAL ASSOCIATION.

THE fourth annual meeting of this Association was held in the Old Castle, Newcastle, on Tuesday, the 13th instant. The chair was taken by Mr. Thomas Austin, Vice-President of the Association. The report having been read by Mr. Oliver, showing a balance of 10*l.* 17s. 2d. in the hands of the treasurer,

On the motion of Mr. F. R. Wilson, seconded by Mr. R. J. Johnson, the report was adopted.

The chairman then read an address. In this he reviewed the proceedings of the Association. In the course of it he said,—"We have found the scale of charges drawn up and sanctioned by this society most valuable to us in our practice, reference to it being, in most cases, decisive in questions of remuneration. The scale of charges recently issued by the Institute of British Architects is a most valuable one, coming from so high an authority. It is singularly corroborative of the justness of the decisions at which we ourselves had arrived; and I may here remark that it is unsatisfactory in the same degree as our own in the question of charges for valuations. Neither our scale nor that of the Institute provides satisfactorily for the remuneration of a class of valuations, which are with us a matter of constant occurrence. I refer to valuations of house property, as guides in cases of mortgage or sale.* I can only infer that in London this is not a part of an architect's practice (the division of labour in London being more marked than in the provinces); but throughout the provinces this is a very common, and I may say, important part of an architect's duty. I think that a revision of these charges in our scale is desirable."

Thanks were voted to the chairman and Mr. Pritchett for the manner in which they had represented the Association at the Architectural Alliance meeting in London.

INSTITUTION OF CIVIL ENGINEERS.

ON January 13th, the paper read was "On Railway Telegraphs, and the Application of Electricity to the Signalling and Working of Trains," by Mr. W. H. Preece, who discussed the various systems that had been introduced in working long tunnels, single lines, steep inclines, &c.

The first application was that of Mr. Cook, the original introducer of the electric telegraph into practical use for railway and commercial purposes. He suggested and established on the Eastern Counties Railway, between Norwich and Yarmouth, in 1844, what was now known as the "block" system.

Mr. Edwin Clark perfected the scheme of Mr. Cooke, in the system he introduced upon the London and North-Western Railway, which was fully described. The needle instrument was employed, but its indications were made permanent by the use of continuous currents of electricity. It not only showed when the line was clear, and when there was a train on the line, but also the occurrence of an accident.

The advantages and disadvantages of speaking telegraphs in connexion with signalling apparatus were considered; and it was maintained that a speaking telegraph should never form a portion of a signalling system, but be a separate and independent agent.

The danger of using the telegraph as a medium of conversation, without carefully writing down everything sent and received, and the necessity of repeating every important message, were adverted to. The use of record-books, as a check upon the telegraph, was also advised. The method of working single lines by telegraph was then discussed. It was argued that single lines, properly worked, would be sufficient to meet a great portion of the traffic of this country; and that large sums of money had been uselessly expended, in consequence of Parliament compelling railway companies to make double lines where a single line would have been ample for the requirements of the district. This had been owing to the absence of a reliable signalling apparatus, and the want of confidence in, or knowledge of, the telegraph by railway managers.

* See a letter on this same point in our present number. ED.

WATER SUPPLY OF TOWNS.

AT a recent meeting of the Manchester Literary and Philosophical Society, a paper was read by Mr. Edward Hull, B.A., on "The New Red Sandstone and Permian Formations as Sources of Water Supply for Towns." The paper commenced by pointing to the advantage enjoyed by most of the large towns of the central counties from their geological position, when built on the new red sandstone. First, from being in proximity to coal; second, from having a dry foundation; third, from having easy access to building-stone; and, fourth, from the fact of their resting upon natural reservoirs of water stored up in the sandstone itself.

The author considered that many of these towns had not taken full advantage of this last-named source of water-supply, partly from a distrust of the resources of the rock, and partly from the failure sometimes sustained in consequence of the positions for the wells having been selected without a proper regard to the geological structure of the country.

The author referred to the failure of the attempts to obtain fresh water at Rugby, and a sufficient supply at Wolverhampton; and he maintained that an abundant supply might have been found at the latter town had the position for the well been selected with due regard to the geological structure of the country.

The author then proceeded to lay down certain rules of general application for the selection of proper sites for wells, and illustrated the subject by reference to a well now being sunk under his direction at Whitmore, for the supply of the railway works and town of Crewe. The position of the well is in a *trough*, both geographically and topographically; and on a 4-inch bore-hole being sunk to a depth of 148 feet, the water ascended to the surface with a head of 4 feet, and has continued to flow without diminution for the last six months.

The well, which is being made within 100 yards of the bore-hole, has only reached a depth of 60 feet, but already yields 250,000 gallons per day.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.

AT the meeting of the above society on Thursday evening, the 15th instant, at their rooms, in Conduit-street, Mr. Hurlstone, President of the Society of British Artists, read a paper "On the Drama and Poetry of Spain."

He commenced by observing that a French critic had said that all Spanish literature was comprised in "Don Quixote." Now, so far from being contained in one book, it was not only unsurpassed in copiousness and richness, but was stamped with a raciness and originality peculiarly its own. Besides the various works of Cervantes, he cited those of Calderon, the Spanish Shakspeare, and Lope de Vega, who is supposed to have written no fewer than 2,000 pieces, but of which only 300 are printed. After a scene from the early Spanish drama he selected those masterpieces of its best period which contrasted with the greatest dramas of other countries, such as the "Magico Prodigioso" of Calderon, with the "Hamlet" of Shakspeare, and the "Faust" of Goëthe; "La Cisma de Ingleterra" with "Henry VIII.," and "El Mayor Monstruo los Zelos" with "Othello." He then described the favourite types of character in the Spanish drama, and particularly dwelt upon that indispensable one, the *Gracioso*, who is a running satire upon the foibles of his master, and plays the same part in drama that Sancho Panza does in the romance. He divided the Spanish drama, not into tragedy and comedy, for it was a mixture of both, but into heroic dramas and those of the *Capa y espada* (cloak and sword, or dramas of intrigue), of which he gave specimens, and dwelt upon their irregularities, disregard for the unities, and habitual anachronisms. In treating of the "*Cisma*," he described the sacred processions which were connected with the "*Autos Sacramentales*," or sacred dramas, which were very splendid, and in which the figure of Anna Boleyn was prominent and indispensable, as being as much the symbolical embodiment of the hatred of Spanish Catholics to Protestants, as that of Guy Fawkes was at one time of the hatred of English Protestants to Catholics. Time admitting only a very short summary of the poetry of Spain, Mr. Hurlstone referred to the ancient romances and songs, the *Romanceros* and *Canciones*, the subsequent classical style of Mendoza, and the Lyrics and Pastorals of Boscan and Garcilasso; and concluded an able and singularly interesting lecture by alluding to the false taste the *cultismo* style of their latest poets, which is equivalent to our euphuism.

After a vote of thanks to the lecturer, an interesting discussion followed, and the evening terminated as it commenced, with an allusion to Don Quixote,—a gentleman, well versed in Spanish literature, maintaining that to become a *perfect* gentleman, a constant study of the life of that renowned *preux chevalier* was indispensable!

MEDICAL OFFICERS' ASSOCIATION.

AN ordinary meeting of the Metropolitan Association was held at Whitehall, on Saturday evening last; Dr. Thompson, of Marylebone, in the chair. Remarks were made upon the success of the Association in opposing the western drainage scheme of the Metropolitan Board; that body having the day previous rescinded its former resolution on this subject; so that the drainage of Chelsea, Fulham, and adjacent districts will be incorporated with the Main Drainage sewers instead of being thrown into the Thames, near Cremorne, as originally intended.

Dr. Milroy read a paper "On the choleraic visitation at the Central District Schools, Norwood, in 1853." Such were the suddenness and extent of attacks of cholera amongst the children, that a most rigid investigation of all the circumstances connected therewith was made. It appeared that though some causes of the visitation might be unknown, and others with difficulty traced, the great cause was *overcrowded sleeping-rooms*. This was proved by a comparison of figures into which it is not necessary now to enter. A discussion followed, during which it was observed, that more information was needed in regard to atmospheric influences in originating or aggravating epidemical outbreaks. The importance of spare dormitories or apartments, especially in connexion with large establishments, for isolating those attacked with disease, was particularly urged.

METROPOLITAN BOARD OF WORKS.

As we anticipated, the Board, at their last meeting, approved of the recommendation of their committee to rescind the resolution directing the formation of deodorizing works at Fulham. The sewage of the western area will therefore be carried into the low-level sewer, and the intercepting system be thus complete. The estimated additional cost will be about 200,000*l.*

The Board opened tenders for works to be constructed in Queen's-road, Dalston. They were as follows:—

Hill, Kendle, & Robinson	£2,209	0	0
Morris	2,100	0	0
Pearce	2,063	0	0
Kent	2,056	0	0
Scrivener & White	1,997	0	0
Blackmore	1,899	0	0
Bugbear	1,777	0	0
Rowe	1,759	0	0
F. & F. Wood	1,629	0	0
Dowell	1,599	0	0
Thirst	1,582	0	0
Dethick	1,495	0	0

The contract was given to Mr. Dethick, subject to the usual securities.

The District Surveyor of Newington was suspended for three months, and the District Surveyor of Bromley was censured, for "dereliction of duty."

DALHOUSIE INSTITUTE, CALCUTTA.——*Interior of the Great Hall.*

THE DALHOUSIE INSTITUTE, CALCUTTA.

IN our last volume we mentioned that the first premium (300*l.*) had been awarded to Mr. C. G. Wray, architect, for his design for the Dalhousie Institute. We now give illustrations of the design. The Institute, as we stated at the time, is intended to cost 25,000*l.*, which sum has been collected. It is intended to be built on a site adjoining Government House. The large hall is to be used as a concert and public-meeting room, and will accommodate 1,000 persons seated. It is also to be appropriated to the reception of statues and other memorials of distinguished men. On either side of it are lecture-rooms, lavatories, and an extensive library. The design, externally, may be described as a Corinthian prostyle temple, octastylos; with a lower building, Ionic, on each side. The two outer columns on each side in the portico are close together, and the tympanum is filled with sculpture. Three statues take the place of acroteria on the pediment.

The great hall has single Corinthian columns with antæ projecting from the wall, on each side at intervals, and a vaulted ceiling, panelled, with lunettes above the entablature of the order. A recess at one end will receive an organ.

THE HUGHES PRINTING TELEGRAPH.

THE United Kingdom Telegraph Company are adopting Mr. Hughes's system. This instrument was first introduced in America as a time and labour saving apparatus. From America the apparatus travelled to France, through Great Britain. The advantages of the Hughes printing system are, that a single wave of electricity produces a letter, or numeral; whereas about three and a half are required for each Morse symbol, and some symbols require waves of long duration. Hence the greatly increased speed attained by the Hughes apparatus. This one wave, too, produces an ordinary printed letter instead of a cabalistic mark. The instrument prints at both ends of the wire simultaneously, so that the sending-clerk sees what he is forwarding. No copying or translating being required, as in other systems, the chance of error is avoided.

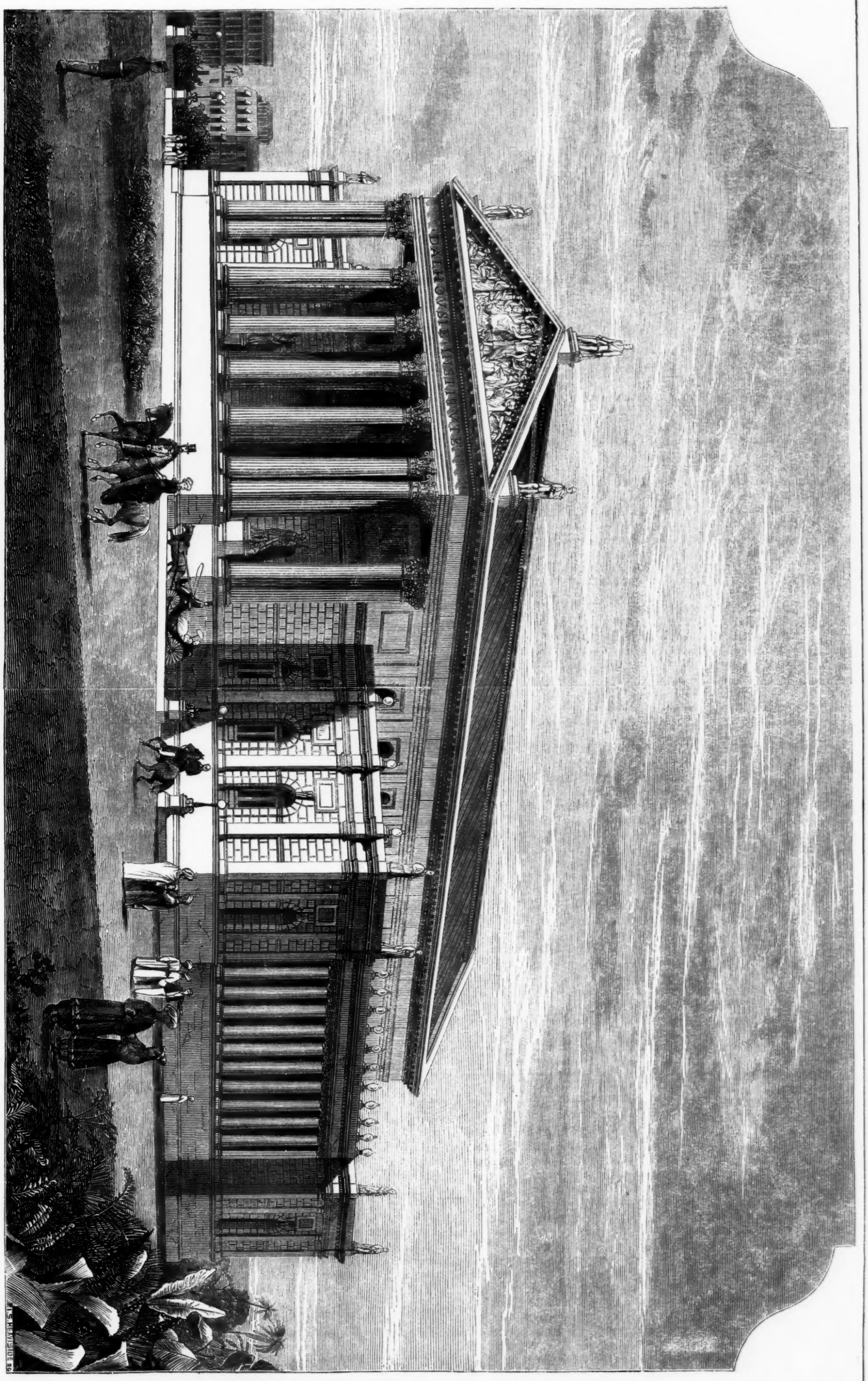
The electrical waves are transmitted by a revolving arm, carrying the segment of a circle as a contact-maker, and the arm revolves at the same speed in each apparatus as the type-wheel. When a key is pressed, a metal plate in connexion with the battery is forced upwards, and meets the contact-maker as it revolves, scrapes along its surface, the current passing the while, and is then thrown back by the contact-maker, and brought to its normal position of rest by a constant spring. The letters are printed while the type-wheel is in revolution, and the type-wheel is driven by friction, which allows of its being moved backwards or forwards by mechanical means.

In the face of the instrument there are twenty-eight keys, arranged like the keys of a piano. These twenty-eight keys correspond with twenty-eight metal pieces or plates, working upwards through slots formed all round a circular disc of metal; on the top of which, but not in connexion with it, the arm and contact maker revolve. The type-wheel and this arm revolve together; and when a key is depressed, a plate corresponding with the letter touched is raised. The position of this on the disc is such that, at the moment the arm and contact-maker touch the plate in their revolution, the corresponding letter on the type-wheel is over the printing-roller,—say at Birmingham and at London. The current instantaneously passing releases the printing-gear at both places, disengaging a detent: a cam driven by the clock-work train immediately presses the paper against the type-wheel, and a letter is printed; whilst, at the same instant, by a graduated movement, the paper is carried on a space, ready to receive the next impression.

The speed secured in France has reached, for days together, fifty messages and upwards per hour per wire, and from forty to fifty words per minute. In America, the apparatus is officially reported as performing upwards of forty words per minute; and at the office of the United Kingdom Company from thirty up to forty words per minute, and forty to forty-six messages, of average length, per hour per wire, have already been sent. The apparatus promises nearly to double the average performances of the Morse and needle instruments at present in use. There is a key-board attached to the instrument, on which the letters of the alphabet are placed: these correspond with the type-wheel, and each time a key is depressed a letter is printed. The key-board is identical with the key-board of a piano, and female operators are consequently found to be admirably adapted for the work.

The peculiarity of the United Kingdom Telegraph Company is that it conveys telegrams (why not "Tell'ems?") between any of their stations, irrespective of distance, at the uniform rate of one shilling for twenty words.

VOLUNTARY ARCHITECTURAL EXAMINATIONS.—Examiners and moderators have been elected in conformity with the regulations for conducting the voluntary architectural examinations for 1863, and twenty-one candidates have sent in their applications for examination; viz., nineteen in the class of Proficiency, and two in the class of Distinction.



DESIGN FOR THE DALHOUSIE INSTITUTE, CALCUTTA.—MR. C. G. WRAY, ARCHITECT.

ARCHED ROOFS AND FLOORS OF BUILDINGS.

THE use of brick arches tied in with iron rods, for floors and roofs, as patented by Mr. W. Clark, engineer to the Municipal Commissioners of Calcutta, appears to be extending in that city. The Calcutta *Engineers' Journal* gives an illustrated account of a house so built there, with rooms 20 feet wide covered by arches of one span. The outer walls are 2 feet 2 inches thick; the inner walls 1 foot 9 inches. The Calcutta and South-Eastern Railway, having made arrangements with Mr. Clark, are just now completing a building composed of three spans: its entire length is 126 feet: the centre arch is 42 feet span; rise 6 feet 6 inches to the height 40 feet. The two side compartments are each 40 feet span, 6 feet rise; thickness 10 inches.

The Government have also erected a spacious range of godowns, 400 feet in length, on the bank of the Circular Canal.

SCHOOLS OF ART.

The Worcester School.—The annual meetings of the friends and patrons of this school have just been held. At the evening meeting for the distribution of prizes, Lord Dudley, the president, occupied the chair. The report, which was read, stated that the school was progressing successfully. The annual inspection of the works of the students and examination were conducted on the 23rd and 24th of October, by Professor Hart, R.A., who awarded twenty-seven medals to students in the Worcester School, and nine to students in the Bromsgrove School, which was taught by the same masters as the Worcester School. The number of medals awarded was greater than on any previous occasion; and it was satisfactory to know that six of them were awarded for works in the highest class of study: three of these were for enamel painting. Awards of the second grade, to the number of thirty-three, were obtained by the Worcester, and to the number of four by the Bromsgrove School. These numbers were also higher than on any previous inspection. During the past year 261 students (13 more than in 1861) had received instruction in the Worcester School, 93 in the Bromsgrove, and 21 in the class at the Pershore Mechanics' Institution. The latter had only been in operation for three months in the year, and a similar class at Droitwich had been for a time discontinued. The total number of persons taught during the year amounted to 1,137; an increase of 73 on the total of the year before. At the close of the distribution his lordship addressed the meeting on the condition of the school, and in so doing said he was sure they would believe that he rose to perform that duty with greater pleasure than ordinary, inasmuch as there were more real signs of prosperity displayed this year in the prospects of the school than they had had to congratulate themselves on for some time past. There was room, however, for more originality in the school.—Though progressing, the Worcester School is not yet self-supporting. The local *Herald* states that it is at least 180*l.* a year under that as yet.

The Kidderminster School.—Several years ago a school of art was established in Kidderminster; but, after a few years of existence, the institution fell through, owing to the want of public support. Twelve months ago, however, the Earl of Dudley, on the occasion of a public meeting at Kidderminster, suggested the necessity of reviving the school, and pointed out its importance to the staple trade of the town. A stimulus having been given to the matter by his lordship's remarks, a meeting was held to consider the question, and this ended in the re-organization of the school. The success of this new effort has just been celebrated by holding the first annual meeting in the Music Hall, Kidderminster. There were about 1,000 persons present. The Earl of Dudley presided; and amongst those present were Lord Lyttelton and Lord Kingsale and party, the mayor, and many other influential persons. The report stated that the school had been in operation for three-quarters of a year on December 21st. The total number of persons who had been taught in or by its agency since its commencement (exclusive of private pupils), had been 520. Although the advantages of the central school had not yet been fully appreciated by the upper and middle classes, the steady increase of the number of artisan students might be considered fully to make up for any temporary discouragements in other respects. The latter class was attended by no less than fourteen artists engaged in the preparation of designs for the staple manufacture of the town. The master had also received applications from professional designers, which have led to the engagement of six of his junior students.

The Manchester School.—A *soirée* in connexion with this institution has been held in the rooms of the Royal Institution, when there was a large attendance of members and friends. A meeting was held in the theatre the same evening, the chair being taken by Mr. Bazley, M.P., the president. The chairman stated that the institution had felt the pressure of the times, and fewer paintings than usual had been sold. Help was needed to sustain them in disseminating the principles of correct design, and he did hope that the friends of education in art would not let it die for want of pecuniary assistance. Mr. Mückley, the master of the school, delivered an address, in which he described the best course for students of art to pursue. Mr. G. Wallis, formerly head master of the school, and now of the Science and Art Department, referred to some of the results of the late International Exhibition. He said it had shown a great progress made during eleven years, and had proved that Englishmen possessed a capacity for art. The progress which had been made had astonished our foreign friends, and the French jurors had made such reports to their Government as would, he believed, result in a complete change in the elementary system of art instruction in France. He had made inquiries and found three hundred and forty-one students of schools of art had been employed in the production of works shown at the late Exhibition. The names of these were returned by the employers, and many more had been employed of whom no return had been made at all. This was distinct evidence that students had been usefully employed in the manufactures of the country, and their works displayed the great advance which had been made in art during the last twenty years. In answer to Mr. Cobden, who wrote to inquire the opinion of his French friends as to the progress we had made during the last eleven years, M. Chevalier and M. Ronher stated that, in metal work, pottery, and textile fabrics, it was very great indeed. Mr. Wallis concluded by urging manufacturers to encourage the study of art by giving employment to the students.

The Norwich School.—The annual meeting of the subscribers to this school has also been held. The report stated that the number of the local medals is considerably larger than in the preceding year; added to which, the school has had the honour of winning a national medallion, which was awarded to Miss Ellen Rose. The total number of pupils in the central and out-door schools was 696.

The Plymouth School.—We regret to learn that the late fire at the Royal Hotel destroyed the casts, models, and examples deposited there. To replace the loss, about 12*l.* are required.

CHURCH-BUILDING NEWS.

Beaminster (*Dorset*).—The parish church of St. Mary, Beaminster, has undergone extensive alterations, and is now re-opened. New seats have been made out of the old pews. The galleries are removed from the aisles, the roofs of which are of dark polished oak. In the south aisle was a place called the bone-house, in which the bones occasionally found in the churchyard were deposited. This has also been removed and its place supplied with seats. The belfry ceiling came down to within about 10 feet of the floor: it has been raised to nearly on a level with the roof; and immediately above the door in the place vacated, a coloured glass window has been placed. The window is the gift of Mr. Edward Fox and his wife, and cost 200 guineas. The window is of the Perpendicular style, which gives the quatrefoil surmounting it a rather out-of-place look. In the quatrefoil is the representation of the young Child in the Manger with his father and mother. Around are angels bearing the mottoes "Glory to God in the Highest, and on the Earth peace, good will toward men." Immediately under this are figures of six prophets. The last portion of the window contains representations of the angel driving "the man" out of the garden of Eden; the three angels visiting Abraham; and the two angels being entertained by Lot. The roof of the chancel is of oak, carved and arranged in pattern. The cost of this was supplied by a rate. The chancel has been restored by the incumbent. The roof of the nave rests upon Bath stone supports, with angels bearing shields with symbols such as the cross, the flaming sword, the nails, the scourge, the ladder, the dice, the crown, the lily, the spear, the sponge, the pincers, &c. The pulpit is of old carved oak, and the choir stalls of the new oak with tracery. The whole of the doors have been made new. In addition to these improvements, an organ has been erected at a cost of 320*l.*, which is to be defrayed by voluntary subscriptions. The organ was built by Mr. G. M. Holditch, of London. The roof was constructed by Mr. Hicks, of Dorchester, and the other alterations have been carried out by Mr. White, of London; Mr. Chick, of Beaminster, acting as the builder. The church contains two stained-glass windows, lately erected. The chancel window is erected "In Memoriam parentem Henricus Oglander, A.D. 1856." Beginning from the top, the symbols are The Lamb, The Four Evangelists, The Birth, Baptism, Crucifixion, Ascension, and Our Lord's Appearance to Mary after death. Beneath these, stretching across the whole of the window, is a representation of The Last Supper. On the south side of this is another window in memory of Peter, only son of Peter and Ann Cox. It represents Jesus assuring Martha that her brother Lazarus shall come to life, and telling the centurion that his son liveth. The total cost of the restorations will be about 2,500*l.*

Cricklade (*Wilts*).—St. Mary's church, Cricklade, has been re-opened. The architect who designed and directed the restorations is Mr. Galpin, of Oxford, and the works were carried out by Mr. Smith, of Highworth, builder. All "Churchwardens' Gothic" is said to have been destroyed, and what was a year ago a mass of mouldering woodwork, crumbling stone, rickety galleries, and irregular pews, now presents something like what a country church should be.

Leith.—The new Episcopal chapel in Constitution-street, Leith, the foundation-stone of which was laid in the beginning of last year by the Chancellor of the Exchequer, is now well advanced towards completion, and is expected to be ready for consecration about Easter. With the exception of the spire, the masonry is all but finished, and workmen are now engaged in roofing it in. The designs of Mr. Gilbert Scott have been carried out, in the erection of this church, under the superintendence of Mr. R. Anderson, architect, Edinburgh. The church, as described in the *Scotsman*, is Gothic, of the style of the thirteenth century, and consists of a nave, with north and south transepts, chancel, and apse. At the south-east corner is the tower, which is to be surmounted by a spire,—the height of the tower and spire, when finished, being 180 feet. The extreme length of the building from east to west is 130 feet, and its greatest breadth 75 feet. The western elevation, which is an adaptation of the west front of Dunblane Cathedral, contains the principal entrance, surmounted by three tall two-light windows, the apex of the gable being filled by a small circular window. The nave is lighted by three three-light windows in each side, and the transepts by two three-light windows in each; and the chancel and apse are lighted by five tall single-light windows. The nave is to have an open timber roof, and the transept and chancel roofs will be boarded in the form of a vault. In addition to the principal entrance in the west gable, there is a smaller one in the south transept. In the interior, the nave is filled with open seats, as is also the whole of the north transept, and part of the south. The church is seated for about 600 persons. The apse is raised three steps above the chancel, and divided from it by an ornamental railing. The interior of the apse is all of dressed stone, and has a moulded arcade running round it. In an arched vault at the south side of the chancel, and dividing it from the vestry-room in the tower will be placed an organ, which is at present being built by Mr. Hamilton, and will cost about 300*l.* It is intended that all the windows shall be filled with stained glass. In the meantime, Messrs. Clayton & Bell, of London, have been commissioned to prepare a picture window, illustrating incidents in the life of St. Peter, in a series of medallions, to be placed in the western gable. This window is the gift of Miss Wood, of Hermitage Park, and will cost about 200*l.* The first-floor of the tower will be occupied as a vestry, and the rooms over it as a library and waiting-room. The church will be warmed by a hot-water apparatus, made by Messrs. Meiklejohn, Dalkeith. Adjoining the church a parsonage has been built, also from designs by Mr. Scott. It has been designed so as to harmonize with the church. The stone of which the church and parsonage have been built is from Bishopbriggs Quarry, near Glasgow. The contractors for the mason work are Messrs. R. & A. Berry, builders, Edinburgh; for the carpenter work, Mr. J. R. Swan, Edinburgh; for the slating, Mr. Anderson, Edinburgh; and for the plaster

work, Messrs. Sutherland & Marshall, Leith. The total cost of the building is about 7,300*l.*, including the tower and spire, and upwards of 1,000*l.* additional for the parsonage. —— Another new church will shortly be opened in Leith. It is for the Pilrig Free Church congregation, and is situate at the north side of Pilrig-street. It will seat about 800, and is understood to have cost about 5,000*l.*——A small church is also being built for a Free Church congregation, in Hope-street, near the foot of Leith-walk.

STAINED GLASS.

Christ Church, Banbury.—The Albert memorial window at Christ Church, Banbury, has been inaugurated by a special service. The church was decorated, and the congregation was an unusually large one.

Chaddesden Church.—On the death of Captain Wilmot, eldest son of Sir H. S. Wilmot, of Chaddesden Hall, the friends of the deceased resolved to perpetuate his memory by some appropriate memorial; and it was forthwith resolved to introduce an obituary window at the east end of the chancel of Chaddesden Church. The design was entrusted to Messrs. Clayton & Bell, of London. The principal subject is the Crucifixion. The window consists of five compartments: on the north side is a representation of the soldiers casting lots for the Saviour's garment, and beyond them the multitude is seen returning from the Crucifixion: on the south side is an illustration of the miracle recorded by St. Matthew—"And the graves were opened, and many bodies of saints which slept arose, and came out of the graves after His resurrection, and went into the holy city, and appeared unto many." In the lower compartments are depicted the typical sacrifices of Abel (Genesis iv. 4), of Noah (Genesis viii. 20), of Abraham (Genesis xxii.), of Aaron (Leviticus ix.), and of David in the threshing-floor of Araunah (II. Samuel, xxiv.). In the upper compartment of the window is introduced a symbolical representation of the Lord in glory; and there are two medallions; one of Eve, and the other of the Virgin Mary. The cost of the memorial was 329*l.* The church has also been further beautified by another stained glass window, which has been fixed at the east end of the north aisle, under the instructions of Sir Henry and Lady Wilmot, as a remembrance of their son. It consists of illustrations of the life of Joseph, in eight compartments. It is also by Messrs. Clayton & Bell.

PROVINCIAL NEWS.

Gloucester.—At the last meeting of the city council, the mayor produced a letter which Mr. Lucy had received from Mr. C. J. Monk, with respect to the proposed removal of the fountain from Eastgate Market to the Park. A short time ago Mr. Monk offered to erect a drinking-fountain in front of the Pump-room, and forwarded a design of the proposed structure; but the Board of Health considered that the site was objectionable. Mr. Monk now offered to place 200*l.* in the hands of the mayor to defray the cost of removing the fountain in the Eastgate Market to any site in the Park which the Board might determine on. The letter was referred to the Park Committee.

Birmingham.—The ceremony of laying the foundation-stone of the New Exchange Buildings, in Stephenson-place, illustrated in the *Builder*, was performed on Wednesday.——The Free Libraries Committee have accepted the tender of Messrs. Branson & Murray, for the erection of the Library and Gallery of Art, on the vacant land adjoining the Midland Institute. The tender amounted to 8,600*l.*, but some additional work has been determined upon, the cost of which will bring the amount up to something above 9,000*l.* The following were the tenders sent in to the committee:—

W. & J. Webb	£10,328	0	0
William Matthews	9,930	0	0
Samuel Briggs	9,920	0	0
John Cresswell	9,900	0	0
Barnsley & Son	9,780	0	0
John Hardwick & Son	9,494	0	0
Chambers & Hilton	9,300	0	0
W. & B. M. Smith	9,000	0	0
Charles Jones	8,760	0	0
Branston & Murray	8,650	0	0

The sum voted by the town council was 12,500*l.* The building will comprehend a news-room on the ground-floor, where the Lending Library will also be situate. Above it, and of the same size and shape, semi-circular, will be the Reference Library, lighted from the top. The Gallery of Art, 69 feet long by 30 feet wide, and having a semi-circular roof, will be placed behind the present buildings of the Institute, and on the top story one additional room will be given to the School of Art. A portico will be erected in front of the present entrance, and a double staircase will lead to the first-floor rooms of the Institute, and to the Reference Library. The building will be erected in the same style as the portion already up. Mr. Martin is the architect. As meddling with another architect's work, it is an unsatisfactory affair.

Halifax.—The new Town Hall is nearing completion. The fixing of the spire is in hand. Some months, however, are expected to elapse before the hall will be formally opened.——The Assembly-rooms having passed into the hands of a joint-stock company, known as the Halifax Public Rooms Company, they have been extensively improved and decorated.

SCHOOL-BUILDING NEWS.

Rodbourne (near Swindon.) — Considerable changes have taken place of late in this parish, the most prominent of which have been the erection of a residence for the parish clergyman and the building of a school-house, both closely adjoining the parish church. The school-house has recently been opened. The principal room is about 50 feet by 20 feet, with open roof. Externally, the building partakes of the Gothic style of architecture. The works have been carried out by Mr. T. Barrett, builder, under the direction of Messrs. Money & Son, architects, Newbury. The school-house has been erected as a memorial of the Prince Consort. A tablet commemorates alike the erection of the building, the liberality of the benefactor by whose orders it has been erected, and the purposes to which it is hereafter to be applied:—

"To the most holy and ever blessed Trinity, our Creator, Redeemer, and Sanctifier, three persons but one God, this building is humbly dedicated, in the fervent hope that the religious instruction given in it on the Lord's day may, by the Divine blessing, be so inwardly grafted in the hearts of the children of this parish as to secure their happiness in this world, and their eternal salvation in that which is to come; and also as a lasting memorial of the virtue and merits of the Good Prince Albert, her Majesty's late Royal Consort, whose untimely end this nation so deeply laments and deplores, by Admiral William Bowles, C.B. September, 1862."

Shepton Mallet (Somerset).—The new church schools, recently erected in the Waterloo-road, have been formally opened. The new buildings, although certainly not very attractive on the outside, are well situate, airy, and commodious. They are built in the Early English style, and have cost about 1,200*l.*

COMPETITIONS.

Carlisle Bridge, Dublin.—What has become of the designs submitted for Carlisle Bridge? Three or four correspondents ask the question, and well they may. Months have passed since the designs were sent in.

Malvern Proprietary College.—At a special meeting of the Vice-presidents and Council of the Malvern College, held on Friday, the 16th, at the Imperial Hotel, Malvern, in order to adjudge the prizes proposed for the two best designs for the College buildings, the first premium of 150*l.* was unanimously awarded to Mr. Charles Hansom, of Bristol, and the second premium of 80*l.* to Mr. Chas. H. Cooke, of London. Mr. Hansom will be employed as architect to carry out his desings for the College buildings. The designs will be exhibited at the Imperial Hotel, Malvern, from Wednesday, the 21st, to Wednesday, the 28th instant.

COST OF IRON AND BRICK VIADUCTS.

FOR those long, over-house viaducts whereon railways are carried into the centres of large towns, engineers appear to still prefer brick arches. The *Engineer* gives particulars as to these and iron girder viaducts, from which we take some notes of cost. About a mile and a half of brick arches have been erected on the line of the Charing-cross Railway, their original estimated cost having been 88,300*l.* A great length of brick viaduct is also being built on the City extension of the London, Chatham, and Dover Railway. The cost of these works is, we suppose, somewhere about 30*l.* per lineal yard, or over 50,000*l.* per mile. The viaduct of the Blackwall Railway was said to have cost 26*l.* per yard. For spans of 50 feet and upwards wrought iron is known to be much cheaper than bricks, and it is questionable if the comparison would not be in favour of iron even down to the spans of 25 feet or 30 feet. For a span of 30 feet the girders for a double line ought not to weigh more than 10 tons, which, at 16*l.* 10s. per ton, would come to 16*l.* 10s. per yard run. Heavy cast iron piers at 7*l.* 10s. per ton ought not to bring up the cost, with a viaduct 20 feet high, to as much as 25*l.* per yard forward. Colonel Kennedy's bridges on the Bombay, Baroda, and Central India Railway have spans of 60 feet throughout, so that the weight of a span for a single line is about the same as the necessary weight of 30 feet spans for a double line. The single 60 feet spans of trussed girders weigh 24 tons, and cost 400*l.*, or 20*l.* per yard. The piers are of all depths, according to the ground, but as they are cast 30 inches in diameter, 1 inch thick, and in 9 feet lengths, and as three columns are employed for a double line over ordinary ground, the weight for a height of 20 feet would be rather under 10 tons for each pier, so that the cost would be about 4*l.* per yard. Perhaps one of the most striking instances of the inexpensive construction of wrought-iron girders on cast-iron piers is that afforded by the pier at Southport. This work, designed by Mr. Brunlees, is 1,200 yards long, and is in 50 feet spans, the breaking weight of each of which is about 120 tons. The whole cost of the pier, including sinking piles, cost of toll-houses, gates, pier-head, &c., was but 7*l.* 15s. per yard forward.

THEATRES.

New Bath Theatre.—We understand that the reconstruction of the Bath Theatre, which was destroyed by fire last spring, is rapidly advancing, and that the opening of the house is fixed for the 4th of March. The decorations, which have been entrusted to Messrs. Green & King, and are being prepared at their premises in Baker-street, are in a forward state, and will be ready for fixing by the end of the present month. The colour of the box linings will be a light grey green, intended to form a contrast with the complexions of the audience. Care has been taken to prevent reflexion by using a dead body colour only. The ceiling will contain a series of allegorical figures, representing the various kinds of dramatic performances; while the dress-circle front will be divided into a number of panels filled with subjects on gold ground, from the more important of Shakspeare's plays, alternating with the heads and heraldic devices of the English kings that he has introduced. The whole of these, as well as the decorations generally, are flat in treatment. The fronts of the upper tiers will have a gold diaper in slight relief, partially filled with a siver ornament on a subdued salmon ground, and slightly relieved with brighter colour. The proscenium arch will be enriched with a series of figures representing "The Seven Ages of Man," as if to bring more forcibly before the spectators the recollection that "all the world's a stage."

Warming the Stage.—"It must have been universally remarked," says a correspondent with truth, "that the stages in England are windy and cold." Now this is a fault that cannot be too much acknowledged. On this point the stage of Munich should be duly examined. First of all the passage at the side, alluded to in a recent communication, is walled off from the stage with proper close-fitting doors; and, secondly, there should be warm air-shafts opening on to the stage; and, in fact, this matter should receive thorough consideration. At present the stages are miserably warmed in England, and greatly affect the actors and singers.

VENTILATION IN COTTAGES.

THE discussion on cottage buildings, at the Society of Arts, reported in your pages, shows how little progress has been made. There are but few parts of England in which the labourer can pay more than 2s. per week rent; many in which he cannot afford so much. At that rent a cottage, with its ground, fencing, draining, &c., ought not to cost more than 80*l.* For such a sum it is useless to attempt to get more than improvements in some essentials. Nothing can be afforded for ornament, nor is it possible to give any but small rooms. The walls must be thinner than could be wished, and they must be of the material that is cheapest in the district.

No attainable size of rooms can be healthy without ventilation, therefore every room should have a chimney shaft. The Barrack Commissioners state as the condition of a healthy room, that the occupants should have 20 cubic feet of air per person, per minute. At this rate a room, 10 feet square and 8 feet high, contains only enough for one person for forty minutes. As the

rooms of a labourer's cottage must for cheapness be small, an attempt should be made to ventilate them properly: a ventilated small bedroom is without question more healthy than an unventilated large one.

Every cottage should have two small bedrooms for the children, in addition to the parents' bedroom. If these are all placed on the upper floor, and each has a fireplace—not a grate—in it, while the living-room, on the ground-floor, has its fireplace and grate in the middle of the cottage, very little contrivance is necessary to make the sides of the living-room smoke-flue in contact with the flues of all the bedrooms. As the living-room has a fire in it, more or less time, during every day, the air in the adjoining flues will be warmed, and an upward current will be set up in them. Fresh-air flues should be formed in the chimney jambs by building them hollow, and these should be supplied by a duct from a suitable source outside, or above, the building. Such a construction is attainable at little cost in a cottage of two floors. The fresh air should be distributed at the top of the rooms, and may be so done as to be insensible as a draught. The cost need not exceed a few shillings.

Chimneys in the middle of a cottage are economical of heat, and perhaps give increased stability to the structure.

It should be remembered, that when bedrooms are sufficiently large to admit of all the children being put into one room, the second room is frequently let to a lodger. FRANCIS LLOYD.

OPEN SPACES TO DWELLING-HOUSES UNDER METROPOLITAN BUILDING ACT.

SIR,—Your leading article respecting a district surveyor's suspension seems to me to make it desirable that I should send you the enclosed statement of a case.

I need scarcely say how much I appreciate the excellence of your remarks. EDWIN NASH.

DISTRICT SURVEYOR OF PENGE AND NORWOOD *v.* BUCK.

IN this case, heard at the Lambeth Police-court, Mr. Elliott, magistrate, March 28, 1860; a dwelling-house had been erected by Messrs. Buck, of Gipsy-hill, Norwood, with an open space of 100 superficial feet in the rear, surrounded by high walls; but after the house had been roofed in, and in great part completed, two water-closets were built, one above the other, within the space of 100 feet, thereby reducing the area to not more than 64 feet.

To this the District Surveyor objected, inasmuch as the back room, a kitchen, on the lower story, was not "lighted and ventilated from a street or alley adjoining;" and, therefore, that there should be a space of not less than 100 square feet. The magistrate decided that the area of 100 square feet was requisite. Upon this Messrs. Buck proposed to insert a window, 4 feet by 3 feet, in the wall between the said back room and the front room, so as to bring the two rooms into communication, which front room was lighted and ventilated from the street in front. Mr. Elliott considered this remedy would suffice: it was allowed, and has been executed.

COMPETITIONS: THE LAST OUT.

WESLEYAN CHAPEL, PLYMOUTH.

SIR,—If your patience is not worn out, and if your desire to improve the existing state of things touching competitions has not relaxed, you may add to that list a few "particulars" supplied for the "Wesleyan Chapel, Plymouth" competition. The committee divide their requirements into two parts. 1st. Chapel, vestries, boundary inclosures, iron railings and gates, roads and ways; and, 2nd. Schools, chapel-keeper's dwelling-house, and classrooms. After stating under each head the accommodation desired, they state what plans they require "to be submitted for competition," which "must be on a uniform scale of 8 feet to an inch, are numerous, and must include details to a large scale.

The list of plans required under the second head is similar, and also includes "details of roofs, windows, walls, seats, desk, and platform, to a scale of 2 feet to an inch."

The outlay of the parts comprised under the first heading, "shall not on any account exceed 5,000*l.*"

The committee with great modesty ask for "a specification, as full and explicit as possible, with particular directions for all things requisite for the completion of the building, including chapel, vestries, schools, &c.; also the boundaries, and the supply of water, lighting, warming, and ventilating."

"The designs which obtain premiums to become the property of the committee, who are not to be bound to employ any of the competitors to carry out the works."

"Two premiums will be given, one of 50*l.*, and the other of 25*l.*" "Competitors must look solely to the premiums for their *remuneration*, as the committee do not engage to employ either of the architects whose designs may be accepted." "The committee will be entitled to receive from the successful competitor or competitors (if not employed to carry out the works), all requisite working drawings and specifications, to enable them to carry out the work; for which, and to cover all correspondence incident to the completion of the building, a sum not exceeding 50*l.* will be paid on the works being completed."

The real fact (which is somewhat clumsily disguised), appears to be that the committee are trying to obtain the right to an architect's entire professional services, value 400*l.* (assuming the outlay under No. 2 head to be 3,000*l.*), on payment of 100*l.* to him, and 25*l.* to some one else. But this is not all: he is to make all working drawings, &c., as in the clause quoted last but one; and yet, in case the works be stopped before completion, he would have no claim whatever beyond the amount of the premium; and even if the works be completed, the "sum not exceeding 50*l.*" might, "in the judgment of the committee," be reduced to 25*l.* A NON-COMPETITOR.

*** Since this was set up in type we have received five other indignant letters concerning this very impudent proposition. Architects who respond to it deserve the treatment they are likely to receive.

SURVEYORS' CHARGES.

SIR,—You have more than once laid before us in the *Builder* the recognized charges of *architects*, but I have not observed any such information as regards surveyors. If some of your correspondents would kindly state what are the usual charges made by surveyors for surveying, valuing and reporting, in reference to property offered as security on mortgage, they would oblige,—

A SURVEYOR.

*** Several letters have reached us to the same effect. We shall be glad to hear from correspondents who may be willing to state their own customary charges.

COMPENSATION CASES.

The Charing-cross Railway.—At the Sheriffs' Court, Red Lion-square, before Mr. Under-Sheriff Burchell, the compensation case, "Marshall *v.* The Charing-cross Railway," has been settled. Mr. Hawkins, Q.C., was for the claimant; and Mr. Lloyd, Q.C., for the company. The claim which, as originally made, was 5,924*l.*, was in respect of the loss of business in Hungerford-street, and the expense attending the purchase of other premises near the Lowther Arcade, in the Strand. Mr. Marshall had been a confectioner and baker in Hungerford-street for twenty-seven years, and had a lease for eleven years unexpired at 160*l.* a year of premises worth 210*l.* He had netted as clear profit 1,100*l.* a year, of which 520*l.* was derived from chance custom. About 4,000,000 persons a year passed to the bridge; and he had sold on one or two occasions 5,000 buns a day. He had expended 2,700*l.* in respect of his new premises, which were not so eligible either for his business or his customers, and five-sixths of his chance custom had been destroyed. He considered he had lost beyond his usual profits about 300*l.* by being obliged to remove in the Exhibition year. Mr. Hawkins claimed a liberal compensation for the injury done to Mr. Marshall, who had been deprived of an excellent site and an increasing business; and on the present occasion he submitted that he was entitled to 4,483*l.* Mr. Lloyd complained that there had been a good deal of "cooking" in bringing the case before the court, and that sums of items of profit had been grossly exaggerated. Mr. Under-Sheriff Burchell told the jury (composed partly of special jurymen) that they were to give a fair compensation for the loss of business sustained by Mr. Marshall, and for the value of property and any loss he had sustained. The jury, after deliberation, assessed the compensation at 3,000*l.*

PATENTS CONNECTED WITH BUILDING.*

IMPROVEMENTS IN RAILWAY SLEEPERS AND CHAIRS, AND IN THE MODE OF FIXING RAILS.—*M. A. Muir* and *J. McIlwham*.—The improved sleeper is cast in the form of a disc: there is a central boss which forms a base, from which the chair jaws spring. This part of the sleeper is cast thicker than the other portion, and below it is further strengthened by a transverse rib, which extends across the underside of the boss, and has formed on it a feather, which is directly under the centre of the rail, and which fits a notch in the bar. From the raised central part the surface of the sleeper slopes slightly towards the margin, the rim being curved in an outward direction, somewhat similar to the lower part of a bell. The sleepers when laid upon the ground are connected by transverse tie-bars, which extend beyond the centre of the sleeper, and this part of the tie-bar is notched to fit the feather part of the central rib of the sleeper. The tie-bar is fastened to the sleeper by a saddle bolt, which passes up through the disc, and is secured thereto either by a nut or split key. The second part of the invention refers to a mode of fixing rails in the chairs.

* Selected from the lists in the *Engineer*, &c.

IMPROVEMENTS IN THE MANUFACTURE OF BLOCKS, PULLEYS, AND WEIGHTS FOR WINDOW SASHES AND OTHER PURPOSES, AND IN THE MODE OF APPLYING THE SAME.—*W. McAdam*. This relates to the application of clay or other suitable mineral substances, either in the form of earthenware or glass, to the manufacture of blocks, pulleys, and weights, and which have hitherto been manufactured of metal. Under one modification of these improvements, as applied to the hanging of window-sashes, the block or frame in which the pulley or pulleys run is formed of clay, moulded to the required form, and afterwards glazed and fired in the usual way. The sheaves or pulleys are also formed of similar materials, and various kinds of clay, such as is used in the manufacture of porcelain and all kinds of earthenware. Instead of using iron or other metal for weights, it is preferred to make them of the heavier kinds of earthenware. These weights are either moulded solid, or with an internal cavity, to be filled with "mine dust," or other suitable mineral material, or which may be mixed with the clay for the purpose of increasing the specific gravity of the weights.

VENETIAN BLINDS AND OTHER WINDOW BLINDS.—*H. Saunders* and *J. H. Mills, Birmingham*. Dated 28th May, 1862.—This invention has for its object, in the first place, the construction of the blinds, and the combination therewith of apparatus for raising and lowering the same in such manner as to admit of the several laths thereof being packed together at the top instead of at the bottom as usual. For this purpose the several laths are respectively connected to a chain at each end, such chains being adapted to work in gear with a pair of corresponding toothed-wheels by the revolution of which the several links of the blind are successively carried forward and packed together in a suitable receptacle at each side of the window, being guided into their respective places by means of guides, which are in some cases fixed, and in others movable on centres. The laths of the blind are kept at any desired angle. The invention consists, in the second place, in adapting and applying to Venetian blinds "lazy tongs" for the purpose of causing the laths to approach near together gradually throughout the blind when it is raised, instead of bringing the laths at the bottom of the blind close together as usual. And the invention consists, in the last place, in fixing the raising and lowering cord of Venetian or other blinds so as to run on a spindle inside a tube on the end of the ordinary roller, for the purpose of allowing the blind to extend to or nearly to the whole width of the window, instead of leaving the usual space between the end of the blind and the side of the window.

METALLIC SASH-BARS.—*W. Perks, Birmingham*. Dated 29th May, 1862.—According to this invention the patentee makes the metallic sash-bars very nearly of the ordinary figure, that is, of the figure in cross section of an inverted T; but he makes the top of the vertical rib somewhat thicker than the other parts of the rib. Upon the said vertical rib of the sash-bar he places a folded or doubled metallic strip, which fits upon the said rib and clips it closely, the lower edges of the said doubled strip being turned into a nearly horizontal plane, so as to cover or partly cover the horizontal parts of the sash-bar on which the panes of glass rest. The said folded or doubled metallic strip is fixed upon the sash-bar by its opposite sides being partially separated when it is placed upon the bar and allowed to close, and thereby fix itself.

Books Received.

Practical Mechanics' Journal Record of the Great Exhibition of 1862. London: Longman & Co.; also at the Proprietor's Office (Patent Offices), 47, Lincoln's Inn-fields.

THIS is a large and handsome volume, full of profusely illustrated articles, by more or less noted writers, on the various subjects into which the Great Exhibition was divided. We have thus a paper on Building Contrivances and Decoration, written by Mr. G. R. Brunell; on Engineering Structures, Harbours, and Docks, by Mr. G. B. Rennie; on Water Supply and Hydraulic Apparatus, by Mr. J. F. Bateman; on Illumination and Gas-making, by Dr. Frankland; on Sewerage, Deodorization, Disinfectants, and Sanitary Contrivances, by Dr. Angus Smith; and many more by various other competent writers. The general editor is Mr. R. Mallet, Vice President Inst. C.E. Ireland.

Having ourselves already pretty well exhausted the more strictly professional branches of the subject, we may glean a few quotations from the papers of Dr. Frankland and Dr. Angus Smith on other subjects of interest to our readers.

Dr. Frankland thus speaks of the means of purifying gas exhibited :—

"Just previous to the Exhibition of 1851 Mr. Hills made a most important discovery with regard to the purification of coal gas; and his ingenious and beautiful process has since received such an extensive development as to have almost superseded the old lime process. This method of purification depends upon two chemical facts; viz., first, that hydrated peroxide of iron rapidly combines with sulphuretted hydrogen, and becomes converted into sulphide of iron; and second, that the sulphide of iron thus formed is rapidly decomposed in contact with the air, the sulphur becoming separated as such, whilst the iron is reconverted into the original material, hydrated peroxide of iron. Mr. Hills recommends that the hydrated peroxide of iron should be mixed with a considerable bulk of sawdust before it is placed in the purifiers. After the gas has passed through this mixture for eighteen hours it is shut off, and replaced by a current of air forced through by a fanner for three hours. The sulphide of iron is thus oxidized, sulphur being separated and hydrated peroxide of iron regenerated; and the purifying material being now revivified, the impure gas may be passed through it again as before. In this way it is only found necessary to remove the material once a month, in order to separate the lowest stratum of about an inch in thickness, which has become clogged up with tar. A proportional quantity of fresh mixture of hydrated peroxide of iron and sawdust having been added, the whole is again returned to the purifier. It is difficult to conceive a more simple and inexpensive process of purification than this. It does not, however, remove carbonic acid.

Both the lime and oxide of iron processes of purification fail to remove bisulphide of carbon vapour, and the organic sulphur compounds above alluded to, from coal gas. These sulphur compounds produce sulphurous acid during the combustion of the gas, and thus the atmosphere of the apartments so illuminated becomes impregnated to such an extent with sulphurous acid as to be highly offensive to the senses, and very destructive to art decorations, bindings of books, &c. For this evil, so frequently complained of by gas consumers, the Rev. W. R. Bowditch, who exhibits under 482, has discovered a remedy, which consists in passing the gas, after it has been submitted to one of the ordinary purifying processes, through or over hydrate of lime, heated to 400° Fahr. At this temperature hydrate of lime decomposes a large proportion of the sulphur compounds, converting the carbon into carbonic acid, and the sulphur into sulphuretted hydrogen. These new compounds are not absorbed by the hot hydrate of lime, but they can be removed by subsequently passing the gas through cold hydrate of lime. The hot hydrate of lime retains its power of thus effecting the transformation of an irremovable impurity into a removable one for a great length of time. Should this ingenious process be found to be applicable on a manufacturing scale, it will constitute a most important improvement in the manufacture of coal gas, and will remove the last objection to the use of gas in dwelling-houses."

A kindred subject treated of by Dr. Frankland is that of paraffine oil :—

"In the British department of the International Exhibition Mr. Young, who must be regarded as the founder of the paraffine industry, exhibits (632) a splendid block of paraffine weighing nearly half a ton, colourless, inodorous, tasteless, and beautifully translucent: he also shows specimens of paraffine candles, and oils made from the Wemyss, Torbane Hill, Wigan, and Newcastle coals; showing that all bituminous coals yield these substances.

Mr. Young's paraffine oil is now very extensively used throughout the United Kingdom as an illuminating agent, for which purpose it is peculiarly well adapted, since it consists mainly of hydrocarbons free from oxygen. These hydrocarbons deposit much carbon on combustion; and hence, with a properly regulated supply of air, they produce a more brilliant light than that obtained by the consumption of an equal amount of animal or vegetable oils, which contain a not inconsiderable amount of oxygen.

The enormous extent of the use of paraffine oil for illuminating purposes may be conceived from the fact, that in the neighbourhood of Edinburgh two years ago, one lamp manufacturer alone had constructed during one year 247,331 lamps exclusively for its consumption, and that he was then making them at the rate of 1,200 per day.

Paraffine oil requires for its combustion lamps of peculiar, but simple construction: thus, the vessel that holds the oil should be of glass or stone ware, so that the oil may not become heated; and for the same reason there should be no metallic connexion between the burner and the oil. For the perfect combustion of paraffine oil, a more rapid current of air is required than in the case of animal or vegetable oils, and the current must be made to impinge powerfully against the flame, either by surrounding the latter with a brass dome within the glass chimney, or by the contraction of the glass chimney itself. The wick should be well dried before it is put into the lamp, as the oil does not readily rise in a damp wick. With good oil the wick will last several months. In trimming the lamp, the wick should not be cut, but only wiped clean; the carbonized edge which it acquires in burning being found to answer better than a newly cut one. It is found in practice that lamps with flat wicks burn the oil somewhat more economically than those with annular wicks; nevertheless, the latter are more convenient where a flame of considerable illuminating power is required.

The comparative illuminating power of paraffine oil is remarkably high. According to Dr. Letheby's experiments one gallon of Young's paraffine oil, weighing about 8½ lb., will give the light of—

23½ lb. of spermacetti candles; or,
27 ,, wax candles; or,
28¼ ,, stearic candles; or,
30½ ,, composite candles; or,
40 ,, best tallow moulds."

Dr. Angus Smith, in speaking of the town sewage question, and while noticing the names of some of those who have recommended dry closets, says :—

"These all seem anxious to retain the method of bringing out the filth of houses by manual labour instead of allowing it to run off by underground passages, never to be seen by the eye until it rises up in the purest and most useful forms in our fields. No method of removal by carts has been found otherwise than disgusting. At the same time it is in many places simply a necessity, and Dr. Lloyd renders it as little offensive as possible. The use of sawdust, as Messrs. G. Smith & Co. propose, or of ashes or any other solid matter poured from the lid, as Dr. Lloyd proposed, may be made to answer with care, but does not promise simplicity and permanence of construction. It is, however, manifest that a reorganization of this old-fashioned method of removal by carts is demanded loudly where water cannot be used, and there is room for great success to its promoters. Generally in schemes of sewage, mechanical is preferred to chemical action. Is it from our love of expenditure or our love of great appearances, which are not found where there is the quiet and silent action of chemical agents?"

On the subject of filters Dr. Smith says :—

"Mr. Spencer sends quite a new filter. It is of artificial magnetic oxide of iron, and it renders even peaty water instantly clear. It is said also to be perennial, because it appropriates the oxygen of the air only and does not expend its own, compelling the oxygen to combine with the organic matter in the water. This certainly gathers probability, from an experiment described as having been in progress for three years at Southport. Experiments will remove all doubt of the efficiency of this new filter, which seems never to fail. Many peaty districts have been rejected by towns seeking a supply of water; now that supply will be available by using Spencer's filter. But it is probably a waste of time to speak well of it, as its power is manifest, and there are no engineering difficulties to surmount. It will be a pity if the love of engineering difficulties should prevent its use.

Dr. Burg, of Paris, sends a stone filter. To filter through stone is not a novelty, and the stone being calcareous, may be an objection. But the form is new. It is a hollow cylinder; and those cylinders intended for towns have nine square mètres of surface within. The frame is of iron, with places for the small filtering stones, which are inserted as panes of glass are. They are about four inches square and a sixth of an inch thick. One description in a French journal says ten millimètres. The inside of the cylinder is filled with water, and the filtering is outwards. Streams flow from the small square stones on every side and fall through the air for thorough aëration. When one-third of the water is filtered, Dr. Burg takes the remainder for purposes where less pure water is demanded. This necessitates two water supplies. The filters cost 20*l.* each, and filter 11,000 gallons per day—a supply intended for 1,000 persons. The force of the water flowing into the cylinder removes the impurities that may collect on the surface. For domestic use the cylinder is dipped into water, and the filtering is inwards.

Atkins & Sons make carbon-moulded filters. Carbon to be moulded, must have pitch or some carbonaceous substance melted with it, which injures the filtering power; but the shapes are capable of variation, and of these may be mentioned the cylinder and tube. By sucking the tube the water enters the charcoal cylinder, and a clear draught is procured from a muddy stream. It may also be used in an inverted manner, that is, by driving the water first into the cylinder, and then allowing it to filter outwards.

M. Danchell, and the Silicated Carbon Company, send very agreeable forms of filters, and this part of the subject is not neglected by the others, who exhibit the finest porcelain and Wedgwood ware in modern and antique forms."

The book is a valuable one.

A Practical Treatise on the Law relating to Mines and Mining Companies. By W. ARUNDELL, Attorney-at-Law. London: Lockwood & Co. 1862.

THIS is a useful summary of the rights, obligations, and privileges of the miner, as they exist at this day, and as defined and determined by the statute law of the land, by decisions in the law courts, and by ancient custom. The Joint Stock Companies Act of 1862, re-enacting that before passed, with some additions and alterations, may have some new bearing on mining as well as other companies, but it was printed on the eve of publication of the present volume. The author, however, refers to its enactments.

VARIORUM.

THE new number of *The Quarterly* contains an interesting and acute article on the South Kensington Museum and the Loan Exhibition. The authorship may be recognised without much difficulty. A short quotation will serve to show the tone of the article. The writer terms the age one of wholesale reproduction of second-rate art, and condemns the working up of sham material to meet the views of the "semi-detached" stratum of society :—

"The key to the prevalence of false furniture will not be difficult to be discovered by any one who has gone a few miles out of town in any direction, and mused upon the strange phenomenon of the endless rows after rows of neat terraces, shading off into blocks of more ambitious semi-detached houses, which are unvarying types of the modern London suburb in Middlesex, Surrey, Kent, and Essex. If he is of a musing or a practical turn, he cannot fail to make the discovery that these bantlings of the building fraternity present in the aggregate an appearance of boundless wealth which can only be explained by the consideration that they are purposely made to combine the maximum of show with the minimum of outlay, both on the part of the speculator who has run them up, and of the tenant of very moderate means who occupies them. We should be the last persons in the world to deprecate art which is really cheap by being really artistic. The substitution of well-executed chromo-lithographs of accredited pictures for tenth-rate original daubs or miserable copies, saves the purse and educates the eye of the man who has a drawing-room wall to cover. The general introduction of furniture showing through varnish the genuine grain of the deal or the birch of which it is made, in place of clumsy veneers of inferior mahogany, coarse grainings of impossible foreign woods, or the Quakerly uniformity of drab-paint, is an unmitigated benefit to good taste, economy, and cleanliness. But before we can proclaim a triumph, the false Duessa of sham art must be slain. As it is, the general upheaving of good taste has been more conspicuous in securing improvement of design than reality of material. We have instances in our eye in which the upward movement in one direction has been counteracted by a downward one in the other; and designs which the popular art-mind would not have swallowed twenty years back have been made possible by a complex ingenuity in sham, of which that generation would have been equally guiltless. Perhaps the Crystal Palace has something to answer for in this respect."

The writer thinks, nevertheless, that he can discern the results of a more catholic study and appreciation of all the styles of art :—

"Architecture is no longer confined to the direct imitation of a few stock patterns; and the furnishing of a house is no longer abandoned to the upholsterer's unenlightened judgment. Considerations of climate and of national habits, the close study of natural forms in human, animal, and vegetable life, bold experiments in the juxtaposition of colours, a wider employment of materials for constructive objects,—all indicate the germination of a new style derived from, but not servilely following, existing systems. We shall not recapitulate the means by which we have already had occasion to show we have arrived at the conviction that this style, while boldly eclectic in its details, must, in its main principles, vividly embody the historical characteristics of England, for whose material uses it will come into being. We are aware that in venturing this anticipation we may excite the apprehension, and perhaps bring down the grave remonstrance of those who are afraid to look beyond precedent. We are satisfied to take refuge in the conviction of the essential unity of all true art; while from that conviction we infer the unsoundness of all theories which hold up any antecedent age as an epoch of ideal perfection."

After indicating the semi-detached house of the suburbs as a last stronghold of bad taste, he looks hopefully to the country-house, properly so called, as a likely field for successful originality.—— "Science elucidative of Scripture and not antagonistic to it. By J. R. Young, formerly Professor of Mathematics in Belfast College, &c. London: Lockwood & Co. 1863." This is an able treatise in its way; but the best of all weapons against sceptics, either from within or from without, we conceive, are spiritual weapons. There is among modern Churchmen by far too exclusive a dependence on the "letter" of the Bible "which killeth;" and an almost total blindness to "the spirit," which alone "giveth life." Hence the power and mischief of such attacks as those of Bishop Colenzo and the Essayists from within the Church, as well as of those of more open sceptics from without. This was not so in olden times, when the spiritual and typical meaning of literal Scriptural narratives was far more deeply and exclusively considered than the mere literal meaning itself. When St. Paul tells us, of the story of Abraham, Agar, and Sarah, that these things "are an allegory;" and turns our attention exclusively to the deep and vital spiritual meaning involved in the literal story; while he treats the latter with complete disregard; what does it signify to a Christian whether "the letter" in such a case be assailable or unassailable, since it is "the spirit" infused into it which alone "giveth life"? Here is a chink opened to us by St. Paul, which lets in the Light of the Spiritual Sun over the whole length and breadth of the Jewish Pentateuch. If, on the other hand, an author such as Mr. Young imagines that he can silence scepticism in the way he tries to do, we fear he will find himself mistaken;—as, for example, in the ingenious attempt to render the miracle of Joshua a little less startling than it appears to be; by an explanation to the effect that the sun, though commanded, really did *not* stand still, neither was the moon stayed; or rather that the earth did *not* cease to rotate; but that some sort of vacuum may have been produced in the ethereal medium; the result of which miracle would be that the sun might disappear, and the moon also, for a whole day; while, somehow, light remained till the sun and moon came round again, or rather till the earth had completed its usual diurnal rotation; when the sun and moon would again appear, in consequence of the filling up of the ethereal vacuum. Now only let us look a little closely to the passage itself in question, in the first place; and we may at once perceive that its true meaning must be spiritual, and not literal at all; and, in the next place, let us "search the Scriptures" for affinitive passages which may shed a light upon this one; such as Scripture alone can shed upon Scripture; and then we shall have a better understanding of its true meaning than by all the vain attempts of science to settle such a question. The narrative of the miracle in Joshua (x. 12) thus opens :— "*Then spake Joshua to* THE LORD, in the day when the Lord delivered up the Amorites before the children of Israel; *and he said* ["*to* THE LORD"], in the sight of Israel,—SUN, stand thou

still upon Gibeon"; &c. The Sun, then, who "hearkened unto the voice of a man," was the Lord, himself, "the Sun of Righteousness," who thus "fought for Israel," in "the good fight of faith"; and there are many other passages of Scripture capable of shedding a spiritual and affinitive light upon this one. Thus,—"The sun shall be no more *thy* light by day, neither for brightness shall the moon give light unto thee; but THE LORD shall be *unto thee* an everlasting light [both solar and lunar], and thy God thy glory. THY SUN [the Lord] *shall no more go down; neither shall* THY *moon withdraw itself; for* the Lord shall be thine everlasting light." (Isaiah lx. 19, 20.) We have no room here for the teeming explanatory comments which such a passage as this suggests in connexion with the miracle of Joshua. Here and elsewhere in the Scriptures are abundant materials for the correct interpretation of that miracle, on principles quite as Baconian, or inductive, and as scientific, as any; and much more satisfactory and conclusive.

Miscellanea.

RATING AND RESTRAINING TELEGRAPH COMPANIES.—Some of the metropolitan parishes are moving to obtain an Act to regulate the doings of telegraph companies, and to fix some definite rule for assessing the property to the parochial rates.

THE LATE MR. JOHN BILLING, ARCHITECT.—We have to record the death of this gentleman at the early age of forty-five: and do so with regret. It occurred on the 13th instant. Mr. Billing, it will be remembered, had recently given special attention to the construction and arrangement of chimneys.

"APOLLO AND MARSYAS."—It appears that this picture, attributed by Mr. Morris Moore to Raffaelle, has obtained more general acceptance in Rome than in England, where, if we remember rightly, there were two opinions. The Roman Government have determined on having it engraved at the Pontifical Chalcographic establishment, for which purpose a drawing will be made by a leading historical painter and Academician of St. Luke's. It is desired by many that the Government should purchase this picture to secure it for Rome, but as to this nothing is officially given out, and it is doubtful whether Papal finances will suffice.

PARLIAMENTARY DEPOSITS ON RAILWAY BILLS. The 14th was a busy day at the Bank of England and at the office of the Accountant-General of the Court of Chancery, in consequence of the payment by the railway and other public companies of the 8 per cent. deposits on the estimated cost of their respected undertakings in conformity with the standing orders of both Houses of Parliament. It is understood that the payments, all things considered, were highly satisfactory, and that about 3,000,000*l.* in money, stock, securities, and Consols were paid in before the offices closed. The total share capital proposed to be raised in connexion with the new undertakings amounts to upwards of 30,000,000*l.*, the capital proposed to be raised by the metropolitan lines alone being about 8,000,000*l.* Of these latter, however, some did not pay the required deposit, and among them the Fulham and Hammersmith, Pimlico and Paddington, and proposed Kensington and Knightsbridge railways.

THE MANCHESTER WATER-WORKS.—The Manchester City Council is about to make some important additions to its water-works system. The new works comprise a new grating tank, which it is proposed to construct on the easterly side of the Godley reservoir, with conduits and sluices, to enable the water to be drawn either from the reservoir or the gauge basin, in order that the supply may not be interrupted if at any time it should be necessary to empty the Godley reservoir. A main pipe, 30 inches in diameter, is to be laid down from such grating tank at Godley to a reservoir to be constructed on Prestwich Hills. The reservoir will be constructed on land already purchased, and will contain 23,000,000 gallons, whilst the plans will be designed, and a portion of the land reserved, for the construction—if and when required—of a second reservoir. The works proposed will afford a supply of 8,937,000 gallons a day into the Prestwich Hills reservoir for the high-level district, which is about three times the present estimated demand. It is also proposed to obtain power for the construction of an additional embankment at Woodhead. The additional embankment will cost about 35,000*l.* The estimated cost of the new and important works described, including the expenditure at Woodhead, is 175,000*l.*

CHELSEA LITERARY AND SCIENTIFIC INSTITUTION.—A *soirée* was held in the Vestry-hall, King's-road, on Friday, the 16th, to celebrate the second anniversary, when the lecture-hall and reading-rooms were decorated with statuary, pictures, photographs, and microscopes, and a concert of instrumental music was performed by the band of the Corps of Commissionnaires. A quadrille band afterwards did duty. Some clever transparencies in tissue paper, of which we have before spoken, were lent by Mrs. Herbert.

THE WATER-COLOUR ARTISTS' LANCASHIRE FUND.—The artists have sent their first contribution, 500*l.*, to Lord Derby's committee. The subscriptions are now coming in fairly. Mr. Lewis Pocock and Mr. Agnew have priced the various works, and the result is 4,500 guineas. The subscription will be confined to that sum. We hope the prices have been kept moderate. The exhibition in London will close on the 31st instant, and the collection will then be shown at the Royal Institution, Manchester.

THE PROPOSED BURKE AND WILLS MONUMENT AT MELBOURNE, IN VICTORIA.—An address, on 21st November last, was delivered at the Hall of the Royal Society of Victoria, by Mr. John Millar, F.S.A., Civil Engineer, in regard to the proposed site of the monument to be erected to the pioneers Burke and Wills, who lost their lives in crossing the Australian continent. Mr. Millar objects to a monument which is only to cost 4,000*l.* being erected on the gazetted site, as certain to be dwarfed by the overshadowing Houses of Parliament, Treasury, and proposed Chief Secretary's Office; and advises that it be erected in the vicinity of the Hall of the Royal Society itself, whence Burke and Wills may be said to have gone forth on their expedition. The vertex of the triangular piece of ground on which the Hall stands Mr. Millar suggests as a very fitting site for such a monument, which will be the first statuary group in the colony.

LECTURE ON BELLS.—On Tuesday evening last, the first lecture for the second half of the session of the York Institute was delivered by Mr. W. F. Stephenson, of Ripon, his subject being "Bells—Literary, Pictorial, and Musical." The hall of the Institute was crowded. The lecturer divided his subject into half a dozen appropriately-termed "peals" or parts. The first related to the early history of the bell. The second, which included some curiosities of bellfounding, was concluded with a reference to the Bell-Founder's Window in York Cathedral. This, the lecturer said, was the second window in the north aisle of the nave, and was perhaps put in six or seven hundred years ago by a young lady named Tunneck, in memory of her father. The window was a curiosity as exhibiting in its several compartments the ancient methods of bell-founding, one of which showed that the cone, instead of being cast in a vertical position, was cast horizontally. Another compartment illustrated the removal of the metal to the furnace and the opening of the door, whilst the centre compartment of the window exhibited the presentation of the bell to one of the church dignitaries. In the third, fourth, and fifth "peals," the lecturer showed how bells were rung, remarkable feats of ringing, and the language which bells speak. Illustrations of hand-bell ringing were given by the York Campanalogian bell-ringers.

LODGINGS FOR YOUNG MEN IN LONDON.—This is a subject which has occasionally engaged our attention, and we are glad to observe from a letter in the *Star* that a movement is now being made towards a realization of the object in view. The writer says: "Recent conversation with an eminent merchant in the City, who holds a high office in the Corporation, and is but a few years removed from the civic chair, has brought this subject still more prominently before me, at the same time that an unusually good opportunity of trying the experiment presents itself. There are premises to be had for 340*l.* per annum which would accommodate from eighty to ninety gentlemen with spacious coffee and drawing rooms, and a very large kitchen, housekeeper's room, storeroom, and cellars. We calculated that 3*s.* per week would, on eighty inmates, give 12*l.* per week. Now, setting the rent at 7*l.*, four servants 16*s.* each—3*l.* 4*s.*—there would be an ample income, supposing the furniture provided for by one hundred 5*l.* shares paid up by easy instalments, payable, and leave a dividend of 12 per cent. on the outlay: my friend, however, who is willing to be a trustee, doubted whether there was enough cohesion and steadiness among young men to make such a thing succeed. This letter is to try the experiment of inviting letters from young men on this subject."

A POLICE FIRE-BRIGADE.—Government, it is said, have decided upon introducing a Bill into Parliament for establishing a fire-brigade force in conjunction with the metropolitan police.

PROPOSED MEMORIAL OF THE LATE MR. STYLEMAN LE STRANGE.—Subscriptions are being sought to raise a memorial of the late Mr. Le Strange, in the shape of the restoration of Hunstanton Church,—a work commenced by that gentleman. Our advertising pages show where contributions may be paid.

PHOTO-SCULPTURE. — A remarkable invention, intimately connected with photography, is now engrossing the attention of artists, in France, according to *Galignani's Messenger*. The method followed by the inventor, M. Willême, is this:—A number of simultaneous photographs of a person is taken, and the outlines thus obtained are enlarged or reduced at will by the pantograph. With these data M. Willême produces a statue in clay, or bronze, the exact likeness of the original, in any size, and in so short a time as is hardly to be credited. The price, too, is extremely moderate.

THE "DANMARK," DANISH DAILY NEWSPAPER.—A new feature in Danish newspaper literature is the insertion of an English article on literary as well as political events in the Thursday's issue of the new paper called the "*Danmark*," published at Copenhagen. English readers will thus have an opportunity of becoming better acquainted with Danish affairs than heretofore; to the promotion, we doubt not, of a good international understanding between the two countries, which are so soon to be otherwise united in kindred bonds of friendly regard. It is to be regretted that at this precise moment unpleasant questions should be started between the two Governments, at a time when the royal families are about to be more closely united. The circumstance reminds us of something similar on a former occasion. Our oligarchical Government, we suppose, desires to show the world how independent it is of our Royal family affairs.

STEAM ON COMMON ROADS.—Mr. C. B. King (of Abingdon-street, Westminster) has recently designed a traction-engine for some Russian merchants. The boiler, which is constructed on the locomotive principle, is supported by a wrought-iron framing, which, working downwards, is fitted with horn-plates, giving an outside bearing to the driving-wheels, which are 6 feet diameter, and 14 inches wide. They are constructed of T-iron, with a cast-iron boss, from which round spokes proceed. Between the spokes an elastic medium is introduced between them and the tyres, to relieve the wheel from violent shocks, which are often met with when travelling on turnpike roads and paved streets. To each end of the engine are fixed transversely baulks of timber, to which are fixed buffers and drag chains. The length over all is 20 feet, and the extreme breadth 7 feet. The cylinders (which are 8 feet diameter and 13-inch stroke) are fixed on brackets between the main framing and the boiler. The centre of gravity is low, being only 2 feet 8 inches from the ground. The engine is designed to work at 60 lb. pressure on the square inch, and will travel at from 6 to 7 miles an hour.

DWELLINGS FOR LABOURERS.—The recent case of death from foul air in Berks, lately reported in our columns, has redirected attention to this subject in Scotland. The *North British Agriculturist* has an article on the deficient accommodation for agricultural labourers, in which it says:—"Let it once be definitely understood that public opinion demands a better description of housing for labourers; and by a judicious combination of the owners and occupiers of land these obnoxious dwellings will be superseded by comfortable, commodious, and healthy cottages. Hitherto the apathy of all classes directly interested—landowner, farmer, and labourer—to the importance of suitable dwellings may palliate, but cannot excuse, the neglect of many of the landowners in Great Britain in their duties regarding the housing of those required to cultivate their estates. A limited number of landed proprietors have combated manfully with the difficulty. The late Duke of Bedford is the most notable example in England, and the Duke of Buccleuch in Scotland. To arouse public attention to the enormous evils which result to society from the insufficient house accommodation in dwellings occupied by the labouring classes, alike in rural and urban districts, a Parliamentary inquiry is apparently necessary; as hitherto neither lectures, public meetings, nor the press, have awakened the influential members of the community to their responsibilities in reference to the housing of the labouring classes

FALL OF A CHURCH AT LOCARNO. — Private letters give an account of the fall of the church of La Madonna del Sasso, at Locarno, on the Lago Maggiore, between Italy and Switzerland, killing fifty-three women and one man. The dome was heavily covered with snow, which caused the whole to give way while the congregation, chiefly women, were kneeling in prayer. One woman alone (a young bride), escaped, with both legs and an arm broken. Had the occasion been a festival probably 500 persons would have been killed.

ORGANS.—The Court of Queen's Bench have this week decided that they could not sustain the right of patent in the pneumatic lever invented by Mr. Willis, the organ builder, against Mr. Davison, who had appropriated the invention. The Court stopped Mr. Grove for the defendant, being satisfied by him that, as it appeared on the evidence that the pneumatic levers were only another form of bellows, and that the escape valves had been applied to the old form of bellows, the new application of it by the plaintiff was not the subject of a patent.

WANT OF VENTILATION IN COURTS OF JUSTICE. At the Staffordshire sessions lately a letter from the high sheriff of the county was read, stating that the three judges who had sat in the Crown Court during the last year complained of the difficulty of hearing prisoners, and also of the bad ventilation of the court. On one of the days of the last assizes the judge had to leave the court for fresh air, and he (the sheriff) had to do the same. Mr. Twemlow said he replied to the letter, promising to bring it before the finance committee, but stating that he was afraid nothing could be done to improve the ventilation of the court, as it was ventilated on the new principle of having a gas-burner at the top. He would only observe that the ventilation was better before the top gallery was closed. Considerable expense has been recently incurred in improving the court. The chairman said the ventilator at the top of the court might be made larger. The subject was referred to the county surveyor.

AN ELECTRIC WEAPON. — Our readers will doubtless recollect of reading a paragraph in the *Builder* (about the close of the year before last, if we mistake not) as to a crown of electric light which the Empress Eugenie was said to have had made for her. To this intimation we appended a suggestion of our own, that electricity might be made to operate as a weapon of personal defence, giving violent shocks on any one attempting to touch one so armed. A French invention was some time thereafter spoken of, consisting of an electric lance; to which we objected that if the point of the lance were so near the body of the enemy as to bring its electricity into operation, the electrical apparatus would be scarcely requisite. An invention much more like our original suggestion, however, is described by the well-known "Wizard of the North" (Anderson), in his really well-written and amusing notes on a recent sojourn at Honolulu, in Hawaii, which we see thus quoted (though at greater length) in the *Liverpool Journal*:—"'Ah!' said the King, 'I cannot understand how Mr. Anderson could make my officer scream, and get him in such a fright.' I told his Majesty I thought if he would permit me to have the honour of shaking hands with him, he would not be surprised. The King stretched forth his hand: he started, making a few muscular contortions. I released his hand. His Majesty was astonished, as he had no knowledge of the agent I employed. He insisted that Mr. Wyllie should have a 'practical explanation.' My friend Wyllie could not account for the phenomenon: he reluctantly gave me his hand: of course I could use a little more freedom with the Minister of Foreign Affairs than I could with the King. He writhed and screamed, and begged to be released; and, when free, he said, 'I am not surprised at the officer thinking you the devil; for, if you are not his satanic majesty, you are 'no canny.'' The King requested me as a favour to explain the phenomenon, to which I at once assented. I showed his Majesty that I had a small galvanic battery in my pocket, with the metallic cords communicating up the back of my coat, running down the sleeve of my right arm, also communicating with the palm of the hand; which, with metallic threads within the palm of the glove, produced a powerful shock as soon as the battery was put in action in the pocket (which I worked with a spring the moment the hand was grasped)." A magneto-electric machine, worked by a spring, would perhaps be the simplest and most efficient mode of "astonishing the natives" in this amusing manner.

MEMORIAL WINDOWS IN MARYLEBONE.—The Marylebone vestry have determined, with reference to an application from the minister, the Rev. Mr. Sandham, for leave to put in memorial windows in St. John's Wood Chapel, that a fee of ten guineas shall be charged for each window with inscription for parishioners, and twenty-one for non-parishioners.

CONDITION OF PART OF WORCESTER.—A correspondent complains in strong terms of the condition in which some cottages are left adjoining the Birmingham Canal, where it intersects a principal thoroughfare in Worcester. A retaining wall here, he says, fell some months ago, and left the cottages built above, in a dangerous position. The bridge at the crossing is not very creditable.

ACCIDENTS.—A workman in the employ of Messrs. Brassey, the contractors for part of the Main Drainage, was killed on Saturday morning while engaged in the cutting immediately opposite the police-station in the Old-street, St. Luke's. He was nearly 40 feet below the surface, securing the "shoring-up;" and another workman was at the top of the cutting, sawing off and supplying him with wedges of planks about 4 feet in length for that purpose. These were flung down with the usual caution; but it is supposed that in consequence of the noise made by the engine at work, the voice was not heard, and one of the pieces struck him on the head. The back of the skull was entirely smashed in.——One of the extensive glasshouses and furnaces at St. Helen's Crown Glass Works suddenly gave way recently, and fell, part of the thick walls only being left standing. The immediate cause of the accident is not known, but it is probably from the constant intense heat to which the furnaces are subjected, and subsequent contraction. No person was injured.—— A singular accident occurred the other day at Nantes. A climbing boy employed to sweep a chimney, on reaching the top, attempted to introduce himself into the wide tile pipe by which it was surmounted; but the pipe being insecurely fixed, fell into the street, and the boy being inside was killed on the spot.

PORCELAIN.—The construction of the first building of the new Sèvres porcelain manufactory, which is being erected in the park of St. Cloud, is, says *Galignani*, on the point of being completed. While the roof is being placed, the internal arrangements are being effected, and the buildings destined for the ovens and workshops are going on with great expedition. It is in the part of the building fronting the park that the museum containing three complete collections will be installed. The first is composed of foreign porcelain; the second of specimens of French; and the third specimens of the manufactory from its first foundation. The manufacture of porcelain is one of the most ancient arts in the world, for its origin loses itself in the night of time. In 2600 before the Christian era the Chinese had porcelain manufactories. At Babylon, in the reign of Semiramis, enamelled bricks were made, and Egyptian pottery of the same period has been discovered. In 1200, Talcis invented the potters' wheel in Greece; and in 705, Numa Pompilius instituted at Rome a college for potters. About two centuries later, some Greek emigrants carried their processes and their style into Italy, and thence came those articles of *pâte tendre* called Etruscan vases. One hundred years before our era, Gallic, Celtic, German, and Scandinavian pottery was found in tombs. About the middle of the second century the bright-coloured earthenware of the Romans was to be found among the Gauls, and soon after there appeared the dark-coloured earthenware of the Gallo-Romans. In the ninth century the varnished Arab earthenware was introduced; and in 1146, the enamelled ware of Schelestadt. At the beginning of the fifteenth century appeared the manufacture of Lucca della Robbia and the Hispano-Arab terra-cotta; and a century after, the fine majolicas and earthenwares of Florence, the Flemish articles in sandstone, and the earthenware of Henri II. In 1555 the first pieces of Bernard Palissy made their appearance. In 1695 porcelain of *pâte tendre* was first made at St. Cloud. Five years afterwards the manufacture of porcelain commenced in Saxony, Prussia, and Austria. In 1725, England manufactured, for the first time, ware having ground flint as its basis. In 1741, Sèvres produced porcelain of extreme beauty, and that manufacture was introduced into England three years later. In 1770 the Sèvres manufactory produced porcelain of *pâte dure*, and in 1800 England manufactured porcelain of *pâte tendre* with phosphate of lime and boric acid. Such is, in a few lines, says *Galignani*, a summary of what is known of the history of the ceramic art.

THE CATHEDRAL OF AMIENS.—The *Globe's* Paris correspondent states that the cathedral at Amiens has been discovered in so dangerous a state, particularly the vaulted roof, that a celebrated architect has been suddenly summoned to Paris.

GLASGOW.—The Scotia Music Hall, in Stockwell-street, Glasgow, belonging to Mr. James S. Baylis, was opened on the 29th ult. The length of the building, over walls, is 113 feet; breadth, 60 feet; the height from ground to the ridge of roof, 65 feet. The building is in the Italian style. The music-hall contains upwards of three thousand persons. The height from area floor to ceiling of hall is about 40 feet. The architect was Mr. R. Black.

DEATH OE HORACE VERNET.—The celebrated French painter, Emile Jean Horace Vernet, died in Paris on Saturday before last. He was born at the Louvre, June 30, 1789, and came of a race of painters. He served in the ranks of the French army in 1807 and 1809 (was a sergeant at Montmirail), and in the latter year he married, and opened an *atelier* on his own account, glad to undertake any work,—drawing for ladies' fashion-books, drawing bill-heads, and what not. His picture, "The Fashions for 1815" (Waterloo year), the *Morning Post* says, is in the possession of Mr. W. M. Thackeray. His turn, however, was soon to come. He painted in rapid order "The Capture of a Redoubt," "The Barrier of Clichy," "The Dog of the Regiment," "The Trumpeter's Horse" (this latter for Marie Louise), and was decorated with the Legion of Honour, having two years previously obtained the first class-medal for historical painting. In 1825 he was made an officer of the Legion of Honour, and in the following year a member of the French Institute. In 1828 he became director of the Academy at Rome, and in 1842 he was made commander of the Legion of Honour. He was decorated with nearly all the orders of Europe, including the medal of St. Helena. Vernet has been called the Scribe and Dumas of painting. He quitted the classical school and adhered to nature.

TENDERS.

For six houses at Surbiton. Mr. W. C. Reed, architect:—

	Houses.	Add for Greenhouses.
Strange	£10,700 0 0	£180 0 0
Simms	6,676 0 0	300 0 0
Rodda	6,480 0 0	120 0 0
Jones	6,555 0 0	300 0 0
Welsh	6,200 0 0	150 0 0
Mudie	6,000 0 0	120 0 0
Adkins	5,820 0 0	120 0 0
Marshall	5,700 0 0	109 10 0
Bond	5,505 0 0	216 0 0
Clark	5,466 0 0	180 0 0
Mason	5,390 0 0	120 0 0
Bush	5,250 0 0	112 0 0
Stevenson	5,108 0 0	112 0 0
Alderton	5,066 0 0	70 10 0
Boddingham	4,969 0 0	115 0 0
Reed	4,960 0 0	103 0 0
Dover	4,840 0 0	99 0 0

For taking down and re-building two houses and shops in Hope-street, Wrexham, for Mr. Edward Jones. Mr. Michael Gummew, architect. Quantities not supplied:—

Thomas & Roberts	£2,995 0 0
Roberts, John	2,845 11 5
Roberts, Robert	2,750 0 0
Huxley	2,684 10 0
Williams	2,527 16 0
Hughes	2,247 0 0
Pritchard (accepted)	2,200 0 0

The old materials on the ground included in the above tender.

For alterations and additions to Nos. 1, 2, 3, Paddington-green, for Mr. Bonnicod. Messrs. Mathews, Brothers, architects:—

Fox	£890 0 0
Hardiman & Sandon	869 0 0
Tidey	840 0 0
Green	840 0 0
Ramsey	683 0 0
Hill & Son	674 0 0

For additions to the North of England Catholic Reformatory at Howard-hill, near Sheffield. Mr. M. E. Hadfield, architect. Quantities supplied:—

For the whole Work.

Craven, Brothers	£1,785 0 0
Slack & Grayson	1,751 13 0
Robertson	1,741 0 0
Wade	1,738 0 0
Powell	1,699 0 0
Larder	1,620 0 0
Wareham, W. & J.	1,603 0 0
Reynolds	1,600 0 0

Other tenders were delivered for separate trades.

For the erection of a mission hall and residence at Aldershott. Messrs. Eggar & Stapley, architects. Quantities supplied:—

Martin	£2,562 0 0
Duke	2,467 0 0
J. & G. Goddard	2,440 0 0